10-FZ07BVA030S5-LD45E08
10-PC07BVA030S5-LD45E06Y
datasheet

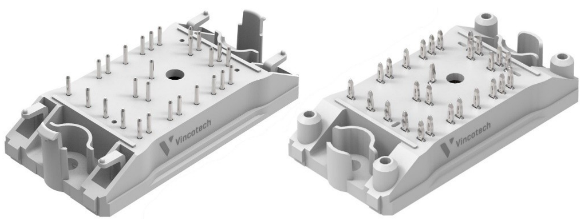
Vincotech

flow **SOL 0 BI (TL)** — **650 V / 30 A**

Features

- For one-phase solar applications
- Booster + Innovative H6.5 topology
- Fast IGBT S5
- LVRT (Low voltage ride through) capability
- NTC

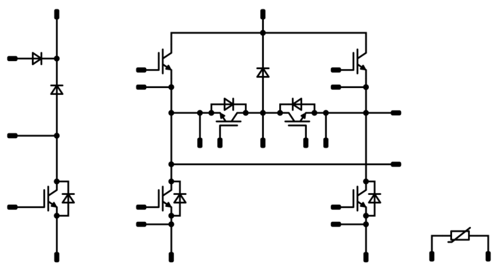
flow 0 12 mm housing



Target applications

- Solar Inverters

Schematic



Types

- 10-FZ07BVA030S5-LD45E08
- 10-PC07BVA030S5-LD45E06Y

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Low Buck Switch / High Buck Switch					
Collector-emitter voltage	V_{CES}			650	V
Collector current	I_C	$T_j = T_{jmax}$	T_s = 80 °C	31	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		90	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	51	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Buck Diode					
Peak repetitive reverse voltage	V_{RRM}			650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	T_s = 80 °C	28	A
Repetitive peak forward current	I_{FRM}			40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	52	W
Maximum junction temperature	T_{jmax}			175	°C
Boost Switch					
Collector-emitter voltage	V_{CES}			650	V
Collector current	I_C	$T_j = T_{jmax}$	T_s = 80 °C	24	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	46	W
Gate-emitter voltage	V_{GES}			±20	V
Short circuit ratings	t_{SC} V_{CC}	T_j ≤ 150 °C V_{GE} = 15 V		6 360	µs V
Maximum Junction Temperature	T_{jmax}			175	°C
High Boost Diode / Low Boost Diode					
Peak repetitive reverse voltage	V_{RRM}			650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	T_s = 80 °C	28	A
Repetitive peak forward current	I_{FRM}			40	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	52	W
Maximum junction temperature	T_{jmax}			175	°C
Input Boost Switch					
Collector-emitter voltage	V_{CES}			650	V
Collector current	I_C	$T_j = T_{jmax}$	T_s = 80 °C	31	A
Repetitive peak collector current	I_{CRM}	t_p limited by T_{jmax}		90	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	51	W
Gate-emitter voltage	V_{GES}			±20	V
Maximum junction temperature	T_{jmax}			175	°C

Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Input Boost Diode					
Peak Repetitive Reverse Voltage	V_{RRM}			650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	T_s = 80 °C	42	A
Repetitive peak forward current	I_{FRM}			60	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	50	W
Maximum Junction Temperature	T_{jmax}			175	°C
Input Boost Sw. Protection Diode					
Peak Repetitive Reverse Voltage	V_{RRM}			650	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	T_s = 80 °C	14	A
Repetitive peak forward current	I_{FRM}	T_j < 150 °C		20	A
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	33	W
Maximum Junction Temperature	T_{jmax}			175	°C
ByPass Diode					
Peak Repetitive Reverse Voltage	V_{RRM}			1600	V
Continuous (direct) forward current	I_F	$T_j = T_{jmax}$	T_s = 80 °C	46	A
Surge (non-repetitive) forward current	I_{FSM}	50 Hz Single Half Sine Wave t_p = 10 ms	T_j = 150 °C	270	A
Surge current capability	I^2t			370	A^2s
Total power dissipation	P_{tot}	$T_j = T_{jmax}$	T_s = 80 °C	56	W
Maximum Junction Temperature	T_{jmax}			150	°C

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Maximum Ratings

T_j = 25 °C, unless otherwise specified

Parameter	Symbol	Condition		Value	Unit
Module Properties					
Thermal Properties					
Storage temperature	T_{stg}			-40…+125	°C
Operation temperature under switching condition	T_{jop}			-40…(T_{jmax} - 25)	°C
Isolation Properties					
Isolation voltage	V_{isol}	DC Test Voltage*	t_p = 2 s	6000	V
		AC Voltage	t_p = 1 min	2500	V
Creepage distance				min. 12,7	mm
Clearance				8,66	mm
Comparative Tracking Index	CTI			> 200	

*100 % tested in production

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Characteristic Values

Parameter	Symbol	Conditions	V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	Unit
Low Buck Switch / High Buck Switch										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,0003	25	3,2	4	4,8	V
Collector-emitter saturation voltage	V_{CEsat}		15		30	25 125 150		1,35 1,54 1,57	1,75	V
Collector-emitter cut-off current	I_{CES}		0	650		25			50	µA
Gate-emitter leakage current	I_{GES}		20	0		25			100	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	f = 1 MHz	0	25		25		1800		pF
Output capacitance	C_{oes}							55		
Reverse transfer capacitance	C_{res}							7		
Gate charge	Q_g		15	520	30	25		70		nC
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,86		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{goff} = 16 Ω R_{gon} = 16 Ω	±15	350	30	25 125 150		56 56 56		ns
Rise time	t_r					25 125 150		9 10 11		
Turn-off delay time	$t_{d(off)}$					25 125 150		84 101 107		
Fall time	t_f					25 125 150		16 31 46		
Turn-on energy (per pulse)	E_{on}	Q_{rFWD} = 0,9 µC Q_{rFWD} = 1,7 µC Q_{rFWD} = 1,8 µC				25 125 150		0,571 0,698 0,739		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		0,197 0,377 0,430		

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	
Buck Diode										
Static										
Forward voltage	V_F				20	25 125		1,56 1,51	1,92	V
Reverse leakage current	I_R			650		25			1,28	μA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,82		K/W
Dynamic										
Peak recovery current	I_{RRM}	di/dt = NaN A/μs di/dt = 3243 A/μs di/dt = 3146 A/μs	±15	350	30	25 125 150		25 33 35		A
Reverse recovery time	t_{rr}					25 125 150		68 110 117		ns
Recovered charge	Q_r					25 125 150		0,888 1,656 1,834		μC
Reverse recovered energy	E_{rec}					25 125 150		0,154 0,330 0,373		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		1330 341 407		A/μs

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Characteristic Values

Parameter	Symbol	Conditions	V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	Unit
Boost Switch										
Static										
Gate-emitter threshold voltage	$V_{GE(th)}$	V_{GE} = V_{CE}			0,00029	25	5,1	5,8	6,4	V
Collector-emitter saturation voltage	V_{CEsat}		15		20	25 125	1,03	1,49 1,67	1,87	V
Collector-emitter cut-off current	I_{CES}		0	650		25			1	µA
Gate-emitter leakage current	I_{GES}		20	0		25			150	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	f = 1 MHz	0	25		25		1100		pF
Output capacitance	C_{oes}							71		
Reverse transfer capacitance	C_{res}							32		
Gate charge	Q_g		15	480	20	25		120		nC
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						2,06		K/W
Dynamic										
Turn-on delay time	$t_{d(on)}$	R_{goff} = 16 Ω R_{gon} = 16 Ω	±15	350	20	25 125 150		62 61 61		ns
Rise time	t_r					25 125 150		22 21 20		
Turn-off delay time	$t_{d(off)}$					25 125 150		131 150 154		
Fall time	t_f					25 125 150		72 105 115		
Turn-on energy (per pulse)	E_{on}	Q_{rFWD} = 0,6 µC Q_{rFWD} = 1,2 µC Q_{rFWD} = 1,4 µC				25 125 150		0,524 0,705 0,765		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		0,431 0,607 0,643		

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	
High Boost Diode / Low Boost Diode										
Static										
Forward voltage	V_F				20	25 125		1,56 1,51	1,92	V
Reverse leakage current	I_R			650		25			1,28	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,82		K/W
Dynamic										
Peak recovery current	I_{RRM}	di/dt = 1272 A/µs di/dt = 868 A/µs di/dt = 1011 A/µs	±15	350	20	25 125 150		13 17 18		A
Reverse recovery time	t_{rr}					25 125 150		72 114 127		ns
Recovered charge	Q_r					25 125 150		0,614 1,203 1,382		µC
Reverse recovered energy	E_{rec}					25 125 150		0,093 0,197 0,234		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		221 184 147		A/µs

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	

Input Boost Switch

Static

Parameter	Symbol	Conditions	V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	Unit
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{GE} = V_{CE}$			0,0003	25	3,2	4	4,8	V
Collector-emitter saturation voltage	V_{CEsat}		15		30	25 125 150		1,35 1,54 1,57	1,75	V
Collector-emitter cut-off current	I_{CES}		0	650		25			50	µA
Gate-emitter leakage current	I_{GES}		20	0		25			100	nA
Internal gate resistance	r_g							none		Ω
Input capacitance	C_{ies}	f = 1 MHz	0	25		25		1800		pF
Output capacitance	C_{oes}							55		
Reverse transfer capacitance	C_{res}							7		
Gate charge	Q_g		15	520	30	25		70		nC

Thermal

Parameter	Symbol	Conditions	V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	Unit
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,86		K/W

Dynamic

Parameter	Symbol	Conditions	V_{GE} [V]	V_{CE} [V]	I_C [A]	T_j [°C]	Min	Typ	Max	Unit
Turn-on delay time	$t_{d(on)}$	R_{goff} = 16 Ω R_{gon} = 16 Ω	±15	350	30	25 125 150		65 66 66		ns
Rise time	t_r					25 125 150		8 9 10		
Turn-off delay time	$t_{d(off)}$					25 125 150		87 106 111		
Fall time	t_f					25 125 150		15 33 45		
Turn-on energy (per pulse)	E_{on}	Q_{rFWD} = 0,9 µC Q_{rFWD} = 1,7 µC Q_{rFWD} = 2 µC				25 125 150		0,421 0,541 0,579		mWs
Turn-off energy (per pulse)	E_{off}					25 125 150		0,300 0,478 0,529		

Characteristic Values

Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	
Input Boost Diode										
Static										
Forward voltage	V_F				30	25		1,25	1,7	V
Reverse leakage current	I_r			650		25			1,6	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,92		K/W
Dynamic										
Peak recovery current	I_{RRM}	di/dt = 4199 A/µs di/dt = 3916 A/µs di/dt = 3772 A/µs	±15	350	30	25 125 150		31 44 49		A
Reverse recovery time	t_{rr}					25 125 150		54 79 95		ns
Recovered charge	Q_r					25 125 150		0,867 1,706 1,998		µC
Reverse recovered energy	E_{rec}					25 125 150		0,206 0,431 0,516		mWs
Peak rate of fall of recovery current	$(di_{rf}/dt)_{max}$					25 125 150		1540 650 780		A/µs
Input Boost Sw. Protection Diode										
Static										
Forward voltage	V_F				10	25 125		1,67 1,56	1,87	V
Reverse leakage current	I_r			650		25			0,14	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						2,87		K/W

Characteristic Values

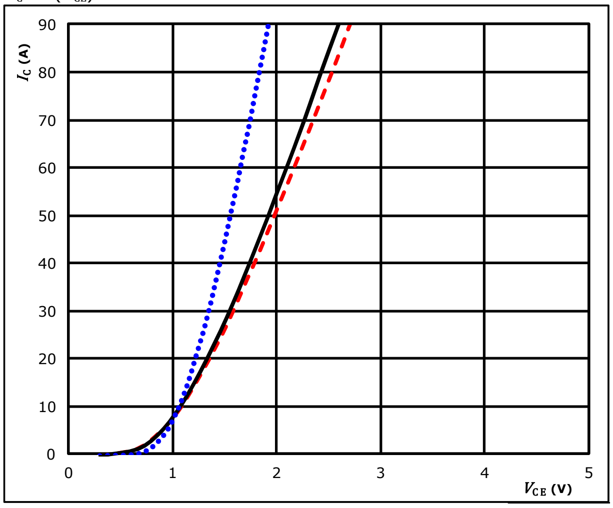
Parameter	Symbol	Conditions					Value			Unit
			V_{GE} [V] V_{GS} [V]	V_{CE} [V] V_{DS} [V] V_F [V]	I_C [A] I_D [A] I_F [A]	T_j [°C]	Min	Typ	Max	
ByPass Diode										
Static										
Forward voltage	V_F				35	25 125	0,8	1,17 1,13	1,8	V
Reverse leakage current	I_r			1600		25 145			50 1100	µA
Thermal										
Thermal resistance junction to sink	$R_{th(j-s)}$	phase-change material λ = 3,4 W/mK						1,25		K/W
Thermistor										
Rated resistance	R					25		22		kΩ
Deviation of R_{100}	$\Delta_{R/R}$	R_{100} = 1484 Ω				100	-5		5	%
Power dissipation	P					25		5		mW
Power dissipation constant						25		1,5		mW/K
B-value	$B_{(25/50)}$	Tol. ±1 %				25		3962		K
B-value	$B_{(25/100)}$	Tol. ±1 %				25		4000		K
Vincotech NTC Reference									I	

Low Buck Switch / High Buck Switch Characteristics

figure 1. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

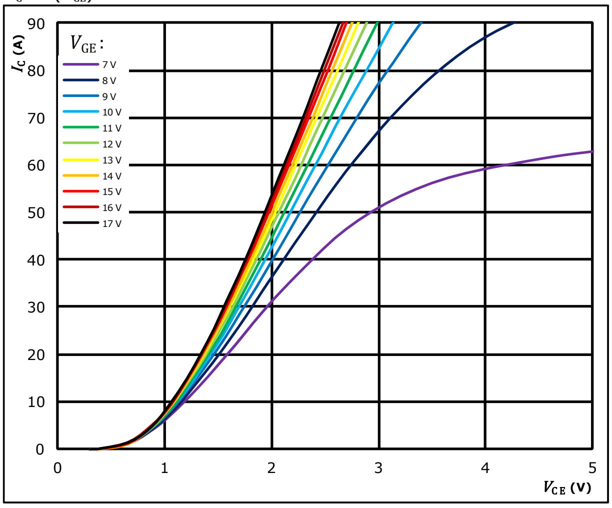


t_p =	250	μs	T_j:	25 °C	··········
V_{GE} =	15	V		125 °C	———
				150 °C	– – –

figure 2. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

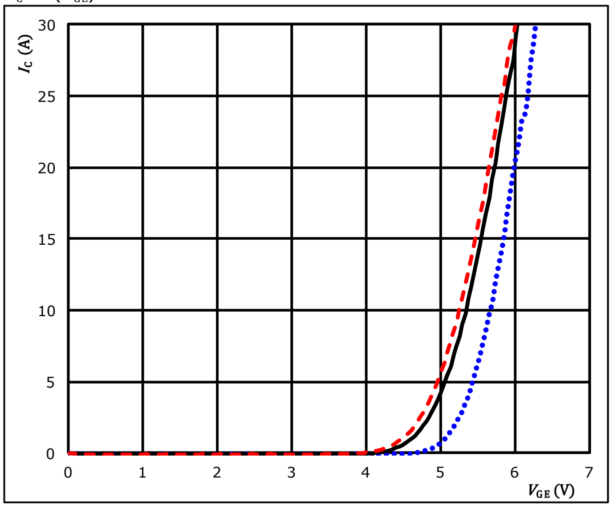


t_p =	250	μs
T_j =	150	°C
V_{GE} from	7 V to 17 V in steps of 1 V	

figure 3. **IGBT**

Typical transfer characteristics

$I_C = f(V_{GE})$

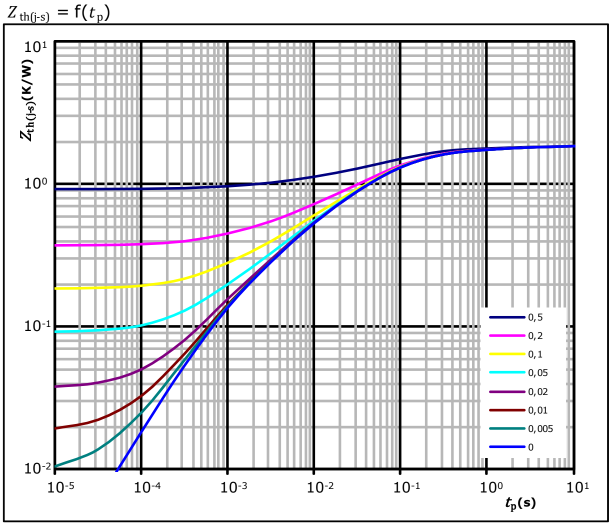


t_p =	100	μs	T_j:	25 °C	··········
V_{CE} =	10	V		125 °C	———
				150 °C	– – –

figure 4. **IGBT**

Transient thermal impedance as function of pulse duration

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 1,86 K/W

IGBT thermal model values

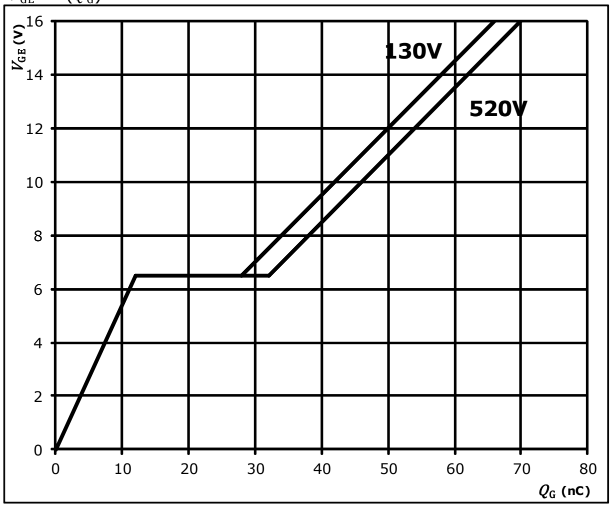
R (K/W)	τ (s)
1,24E-01	2,76E+00
1,92E-01	4,60E-01
7,76E-01	9,02E-02
4,21E-01	2,36E-02
2,47E-01	5,25E-03
9,60E-02	8,07E-04

Low Buck Switch / High Buck Switch Characteristics

figure 5. **IGBT**

Gate voltage vs gate charge

$V_{GE} = f(Q_G)$

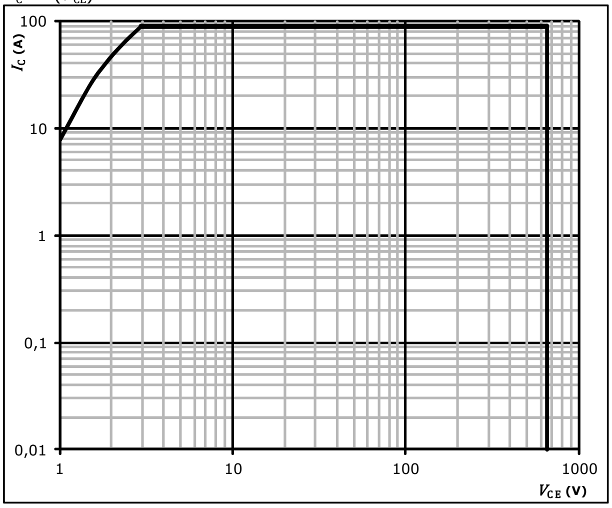


I_C= 30 A

figure 6. **IGBT**

Safe operating area

$I_C = f(V_{CE})$



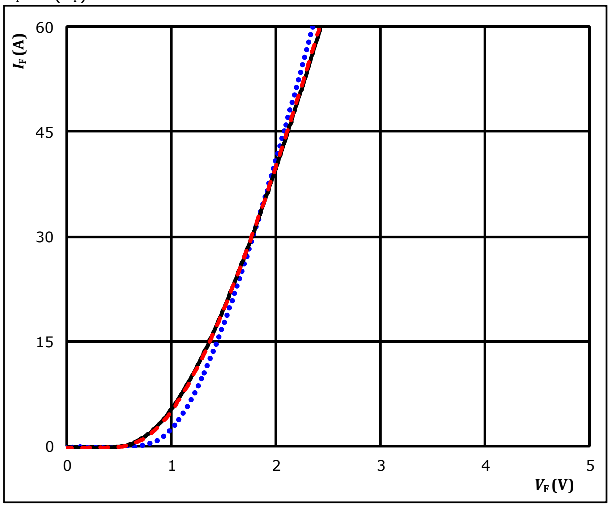
D =	single pulse	
T_s =	80	ºC
V_{GE} =	±15	V
T_j =	T_{jmax}	

Buck Diode Characteristics

figure 1. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



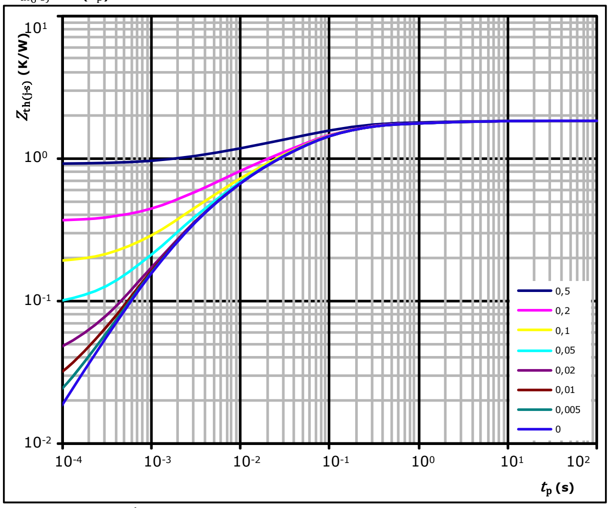
t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

figure 2. **FWD**

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$

$R_{th(j-s)}$ = 1,82 K/W

FWD thermal model values

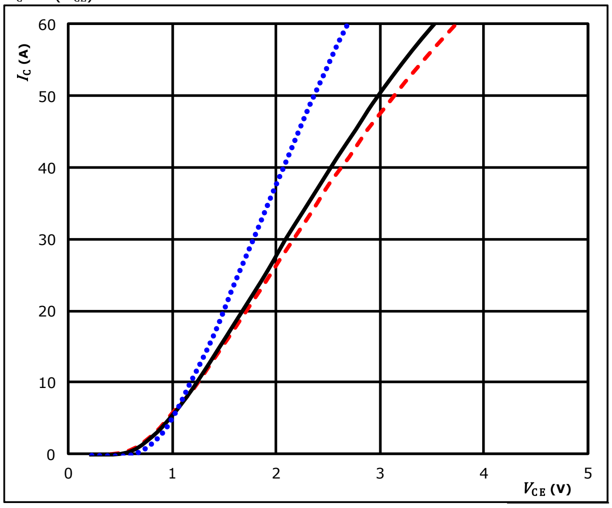
R (K/W)	τ (s)
5,26E-02	5,31E+00
1,17E-01	7,49E-01
5,61E-01	1,08E-01
5,47E-01	3,08E-02
3,91E-01	6,39E-03
1,49E-01	1,43E-03

Boost Switch Characteristics

figure 1. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

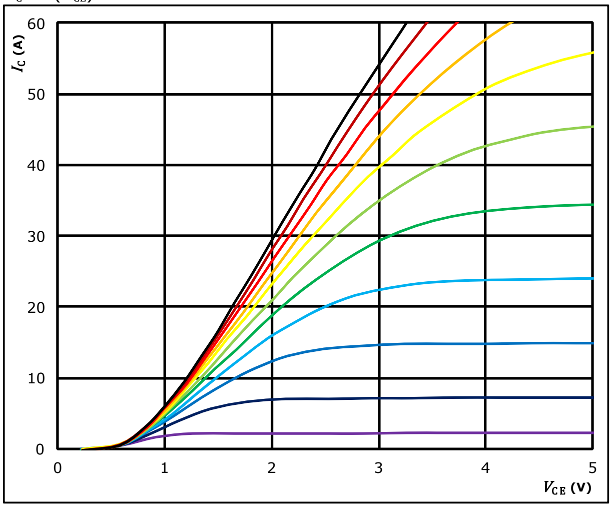


t_p =	250	μs		25 °C	dotted blue
V_{GE} =	15	V	T_j:	125 °C	solid black
				150 °C	dashed red

figure 2. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$



t_p = 250 μs

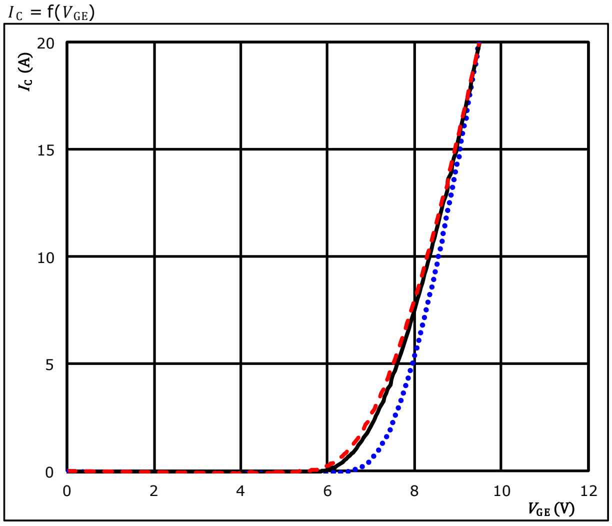
T_j = 150 °C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 3. **IGBT**

Typical transfer characteristics

$I_C = f(V_{GE})$

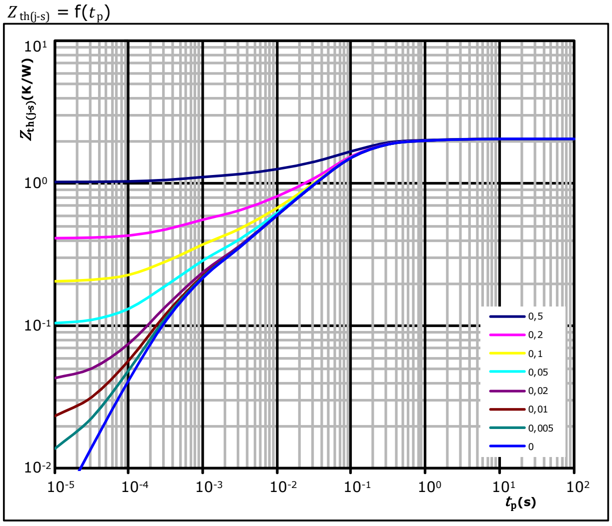


t_p =	100	μs		25 °C	dotted blue
V_{CE} =	10	V	T_j:	125 °C	solid black
				150 °C	dashed red

figure 4. **IGBT**

Transient Thermal Impedance as function of Pulse duration

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 2,06 K/W

IGBT thermal model values

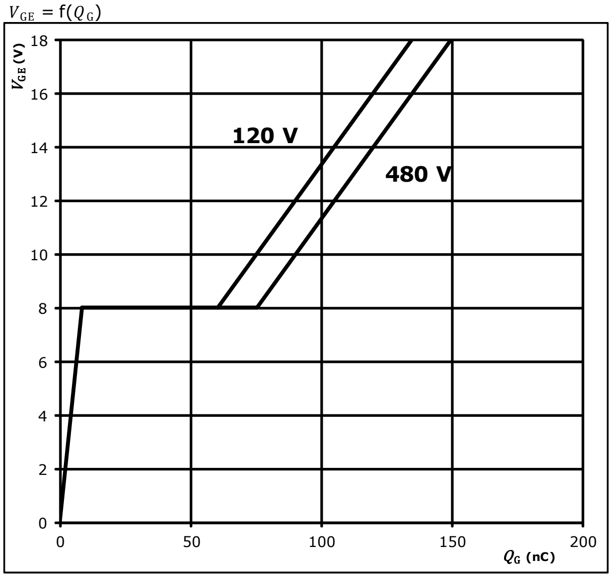
R (K/W)	τ (s)
9,31E-02	1,78E+00
2,45E-01	2,71E-01
1,16E+00	6,94E-02
2,43E-01	1,36E-02
1,64E-01	3,45E-03
1,58E-01	4,12E-04

Boost Switch Characteristics

figure 5. **IGBT**

Gate voltage vs Gate charge

$V_{GE} = f(Q_G)$



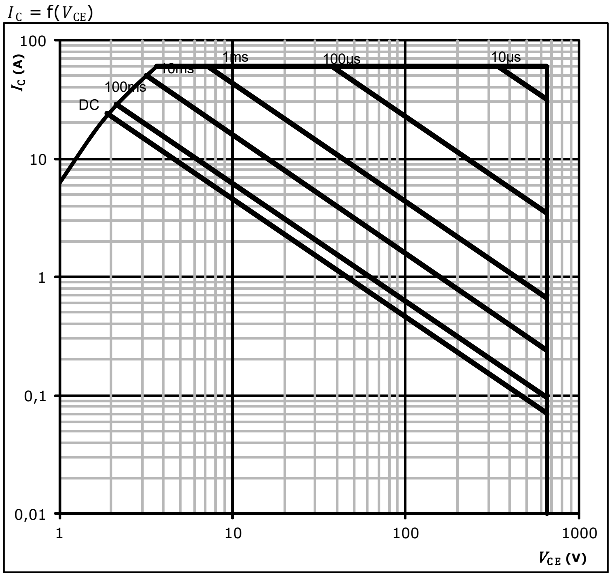
At

I_C= 20 A

figure 6. **IGBT**

Safe operating area

$I_C = f(V_{CE})$



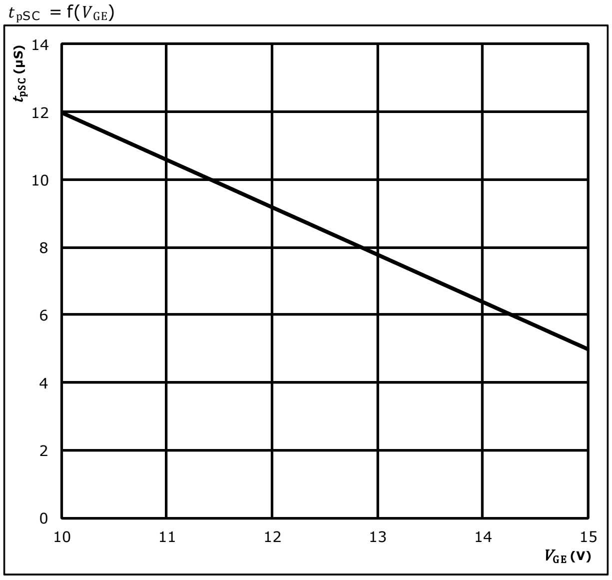
At

D =	single pulse	
T_s =	80	ºC
V_{GE} =	±15	V
T_j =	T_{jmax}	

figure 7. **IGBT**

Short circuit duration as a function of VGE

$t_{pSC} = f(V_{GE})$



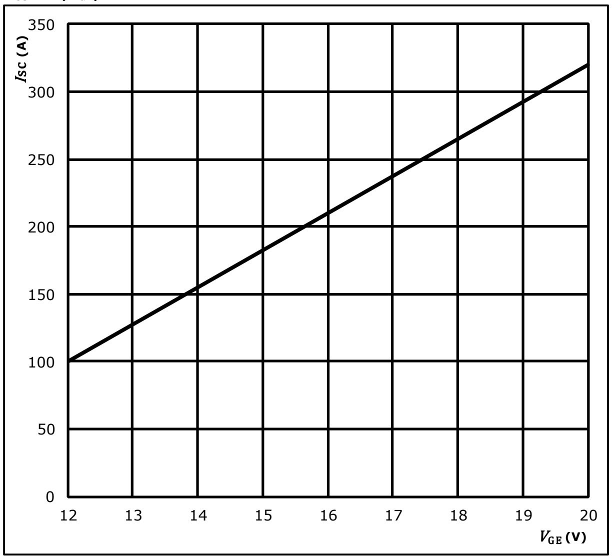
At

V_{CE} =	650	V
T_j ≤	175	ºC

figure 8. **IGBT**

Typical short circuit current as a function of VGE

$I_{SC} = f(V_{GE})$



At

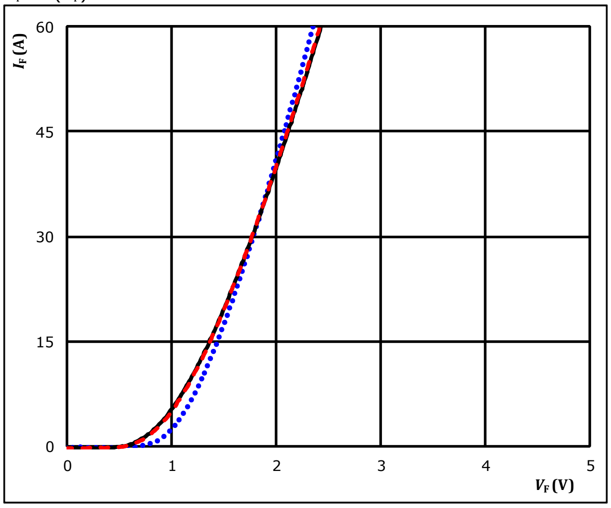
V_{CE} ≤	650	V
T_j ≤	175	ºC

High Boost Diode / Low Boost Diode Characteristics

figure 1. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



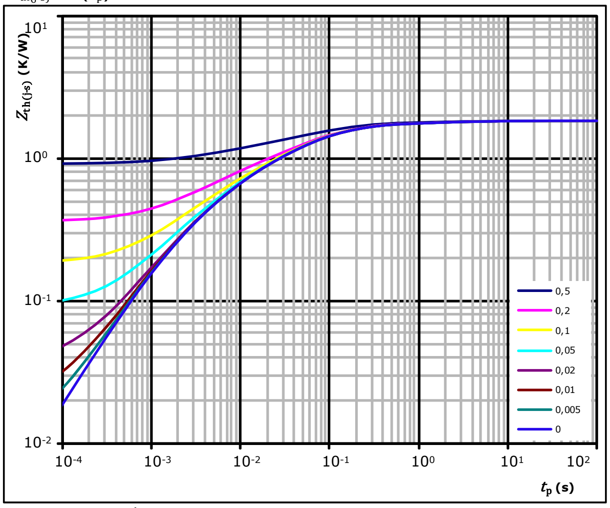
t_p = 250 µs

T_j: 25 °C ; 125 °C ; 150 °C

figure 2. **FWD**

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



$D = t_p / T$

$R_{th(j-s)}$ = 1,82 K/W

FWD thermal model values

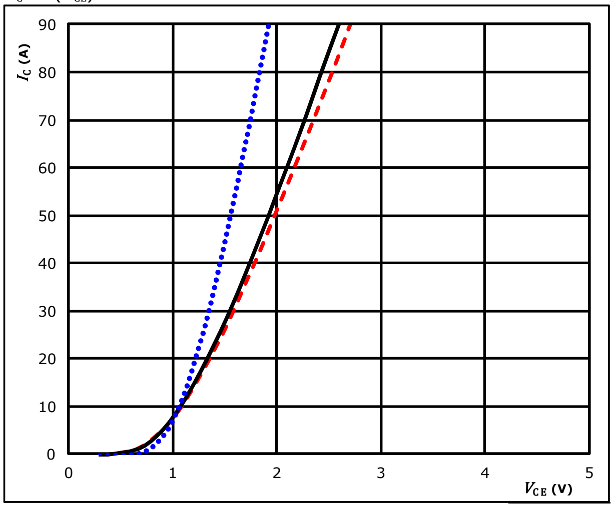
R (K/W)	τ (s)
5,26E-02	5,31E+00
1,17E-01	7,49E-01
5,61E-01	1,08E-01
5,47E-01	3,08E-02
3,91E-01	6,39E-03
1,49E-01	1,43E-03

Input Boost Switch Characteristics

figure 1. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$

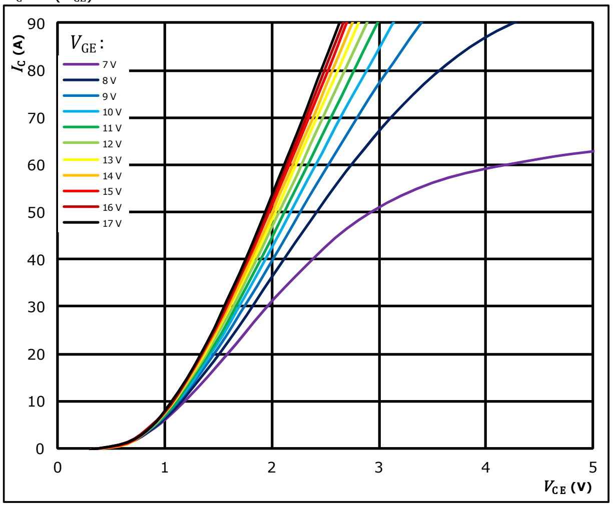


t_p =	250	µs	T_j:	25 °C	•••••••
V_{GE} =	15	V		125 °C	———
				150 °C	– – –

figure 2. **IGBT**

Typical output characteristics

$I_C = f(V_{CE})$



t_p = 250 µs

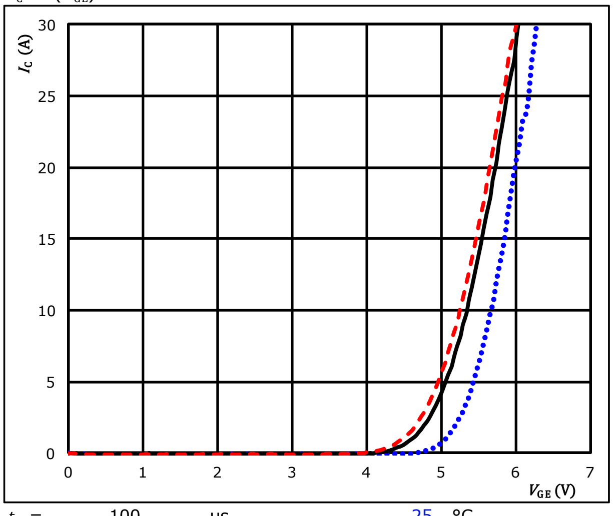
T_j = 150 °C

V_{GE} from 7 V to 17 V in steps of 1 V

figure 3. **IGBT**

Typical transfer characteristics

$I_C = f(V_{GE})$

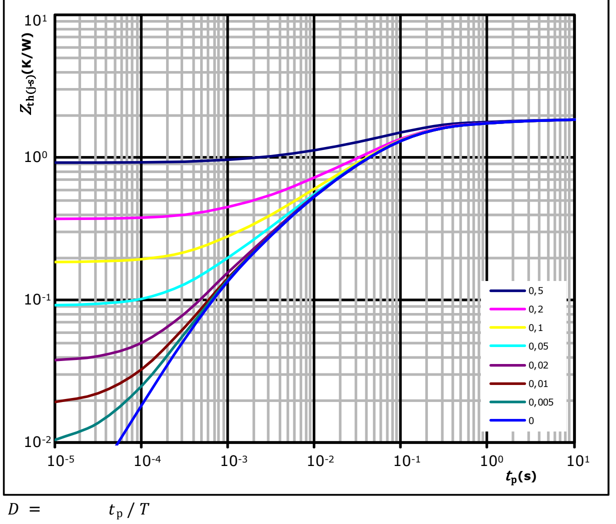


t_p =	100	µs	T_j:	25 °C	•••••••
V_{CE} =	10	V		125 °C	———
				150 °C	– – –

figure 4. **IGBT**

Transient thermal impedance as function of pulse duration

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 1,86 K/W

IGBT thermal model values

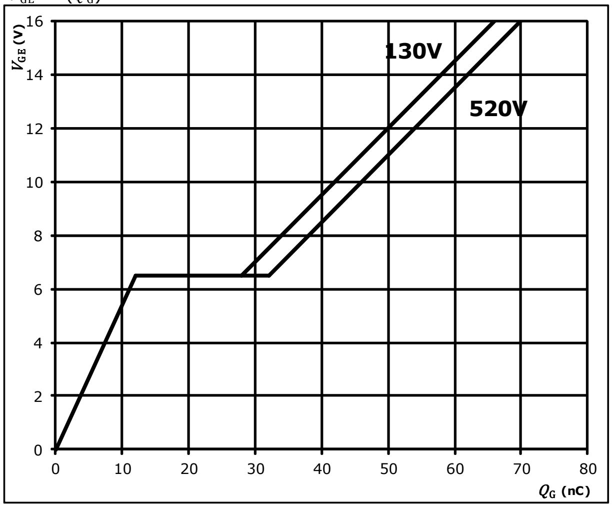
R (K/W)	τ (s)
1,24E-01	2,76E+00
1,92E-01	4,60E-01
7,76E-01	9,02E-02
4,21E-01	2,36E-02
2,47E-01	5,25E-03
9,60E-02	8,07E-04

Input Boost Switch Characteristics

figure 5. **IGBT**

Gate voltage vs gate charge

$V_{GE} = f(Q_G)$

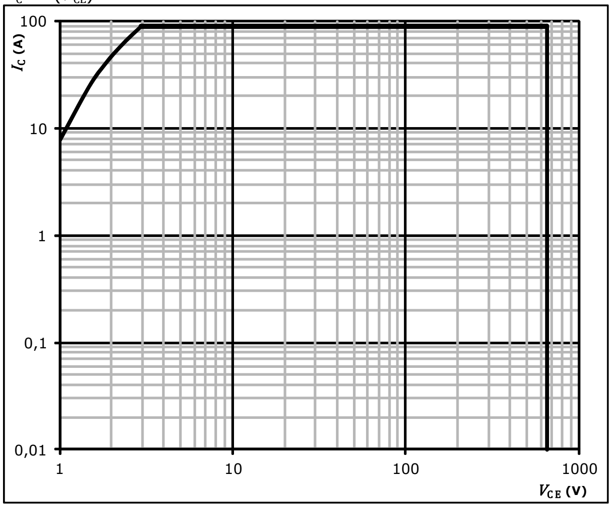


I_C = 30 A

figure 6. **IGBT**

Safe operating area

$I_C = f(V_{CE})$

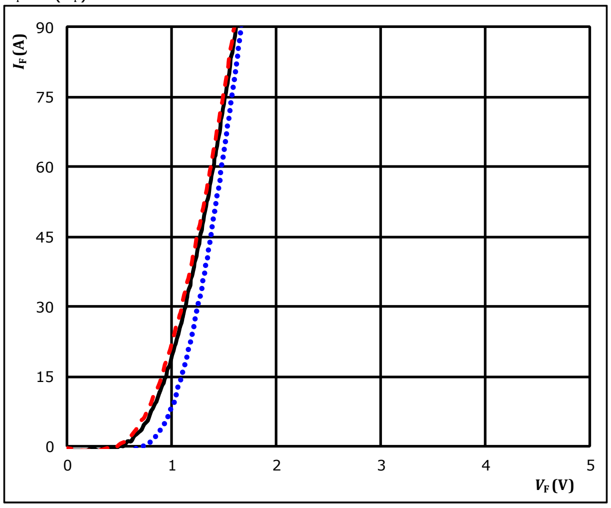


D =	single pulse	
T_s =	80	ºC
V_{GE} =	±15	V
T_j =	T_{jmax}	

Input Boost Diode Characteristics

Typical forward characteristics

$I_F = f(V_F)$

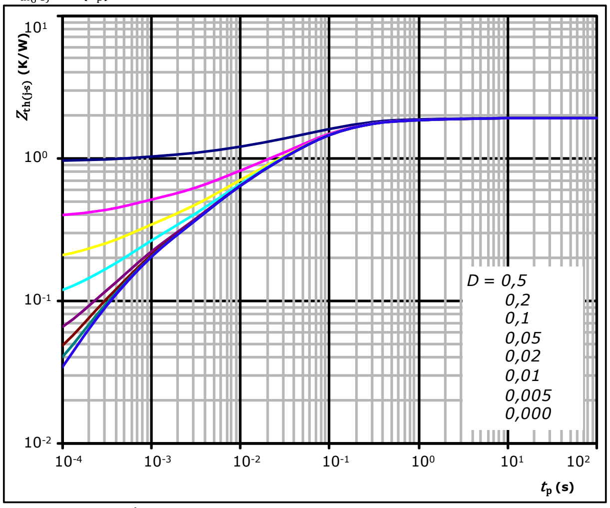


t_p = 250 µs

T_j: 25 °C, 125 °C, 150 °C

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 1,92 K/W

FWD thermal model values

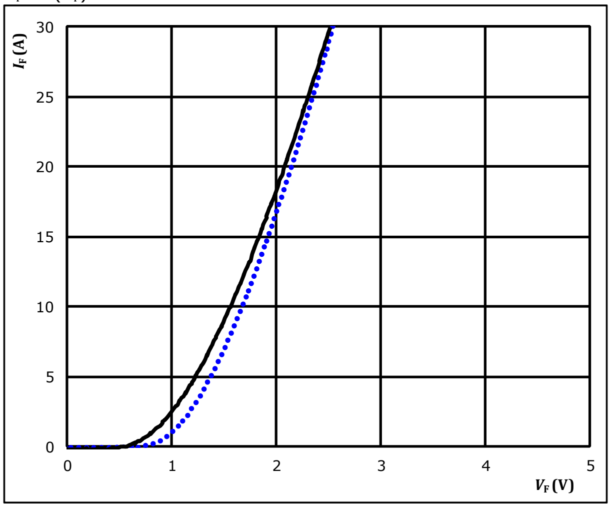
R (K/W)	τ (s)
9,41E-02	2,25E+00
3,44E-01	2,12E-01
8,56E-01	5,84E-02
3,61E-01	9,83E-03
1,37E-01	2,89E-03
1,27E-01	4,79E-04

Input Boost Sw. Protection Diode Characteristics

figure 1. **FWD**

Typical forward characteristics

$I_F = f(V_F)$



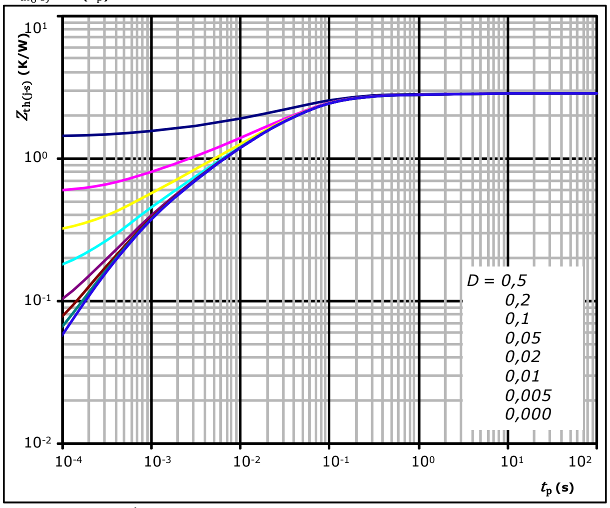
t_p = 250 µs

T_j: 25 °C (dotted) / 125 °C (solid)

figure 2. **FWD**

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 2,87 K/W

FWD thermal model values

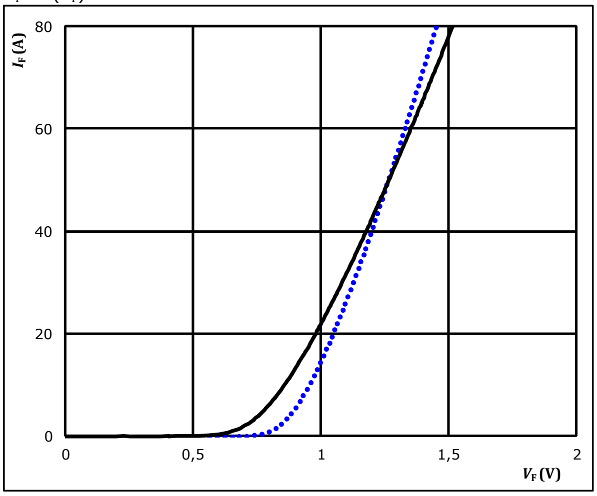
R (K/W)	τ (s)
6,53E-02	3,94E+00
1,48E-01	4,48E-01
1,31E+00	5,96E-02
7,32E-01	1,36E-02
4,04E-01	2,79E-03
2,11E-01	5,37E-04

ByPass Diode Characteristics

figure 1. **Rectifier Diode**

Typical forward characteristics

$I_F = f(V_F)$



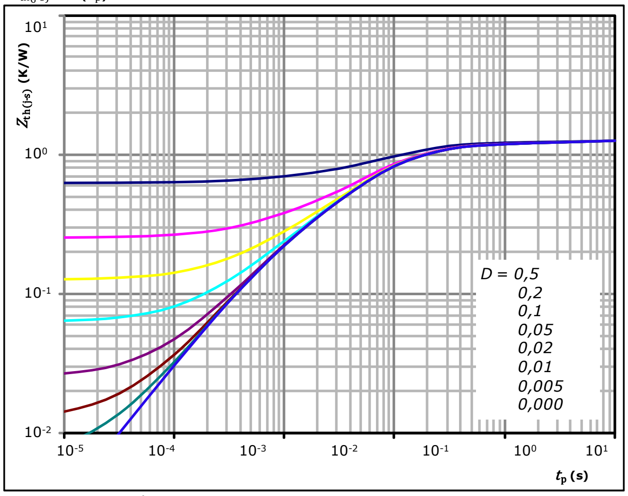
t_p = 250 µs

T_j: 25 °C (dotted) / 125 °C (solid)

figure 2. **Rectifier Diode**

Transient thermal impedance as a function of pulse width

$Z_{th(j-s)} = f(t_p)$



D = t_p / T

$R_{th(j-s)}$ = 1,25 K/W

Diode thermal model values

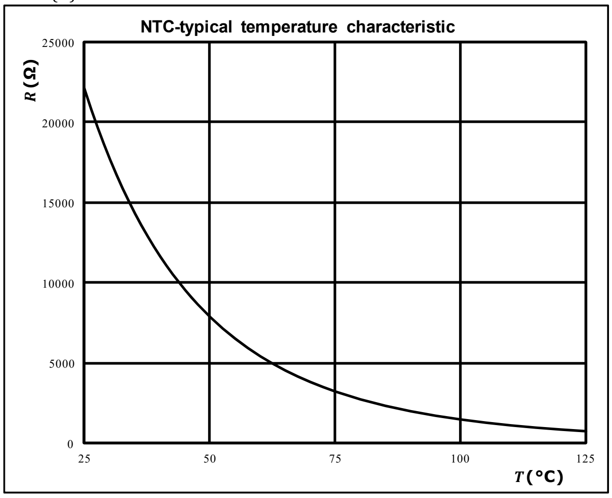
R (K/W)	τ (s)
8,00E-02	5,22E+00
1,56E-01	4,18E-01
6,95E-01	8,82E-02
2,23E-01	3,07E-02
9,97E-02	5,99E-03

Thermistor Characteristics

figure 1. **Thermistor**

Typical NTC characteristic as a function of temperature

$R = f(T)$

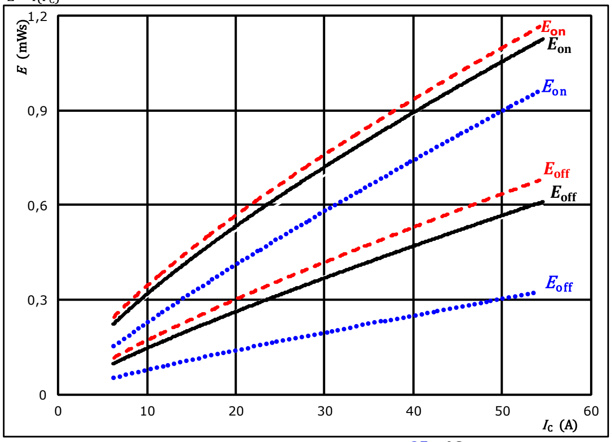


Buck Switching Characteristics

figure 1. **IGBT**

Typical switching energy losses as a function of collector current

$E = f(I_C)$



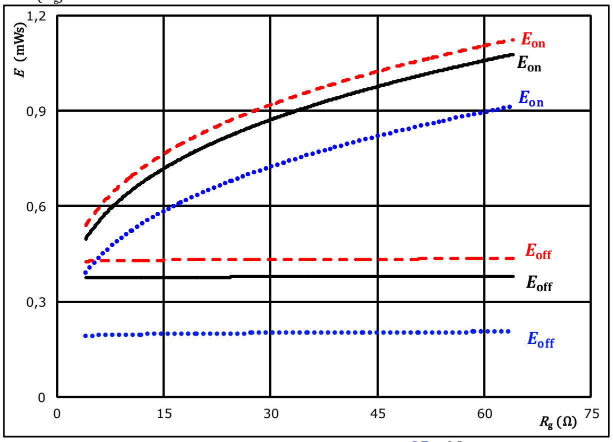
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	···········
V_{GE} =	±15	V		125 °C	———
R_{gon} =	16	Ω		150 °C	– – –
R_{goff} =	16	Ω			

figure 2. **IGBT**

Typical switching energy losses as a function of gate resistor

$E = f(R_g)$



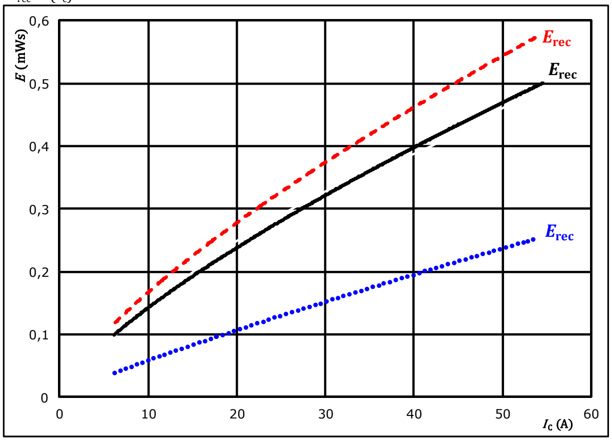
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	···········
V_{GE} =	±15	V		125 °C	———
I_C =	30	A		150 °C	– – –

figure 3. **FWD**

Typical reverse recovered energy loss as a function of collector current

$E_{rec} = f(I_C)$



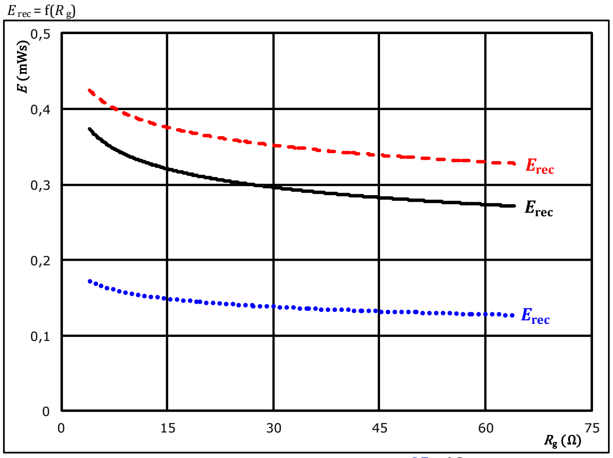
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	···········
V_{GE} =	±15	V		125 °C	———
R_{gon} =	16	Ω		150 °C	– – –

figure 4. **FWD**

Typical reverse recovered energy loss as a function of gate resistor

$E_{rec} = f(R_g)$



With an inductive load at

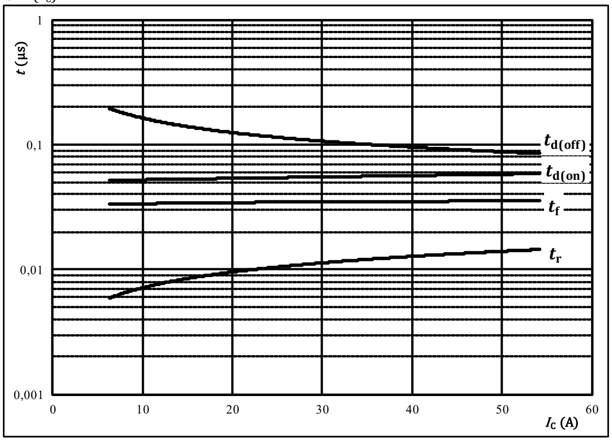
V_{CE} =	350	V	T_j:	25 °C	···········
V_{GE} =	±15	V		125 °C	———
I_C =	30	A		150 °C	– – –

Buck Switching Characteristics

figure 5. **IGBT**

Typical switching times as a function of collector current

$t = f(I_C)$



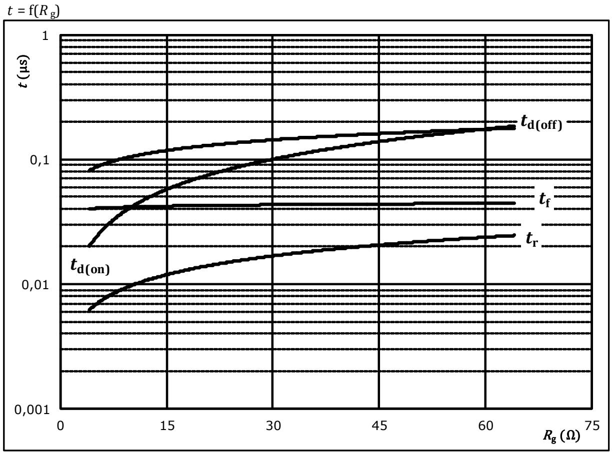
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
R_{gon} =	16	Ω
R_{goff} =	16	Ω

figure 6. **IGBT**

Typical switching times as a function of gate resistor

$t = f(R_g)$



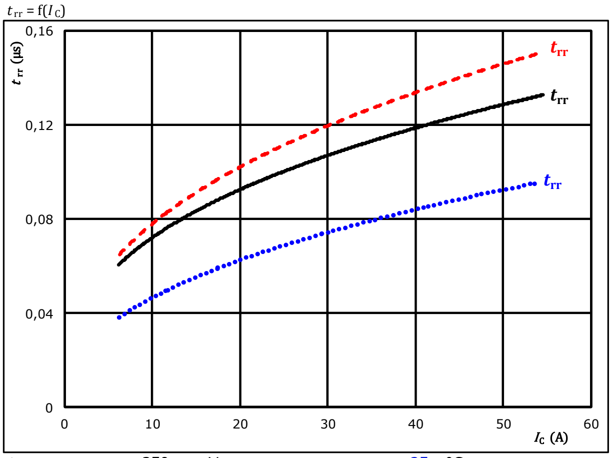
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
I_C =	30	A

figure 7. **FWD**

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$

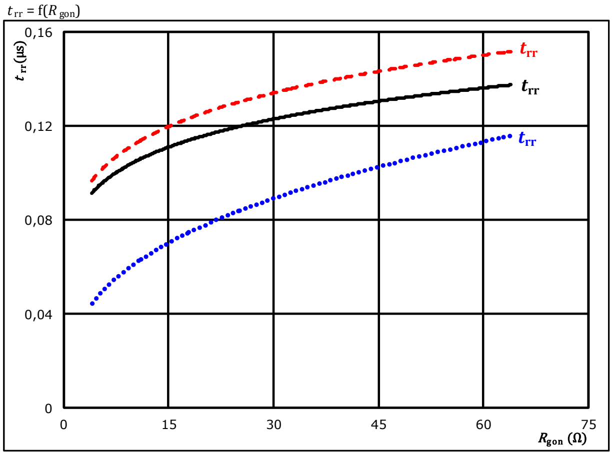


At					
V_{CE} =	350	V		25 °C	···········
V_{GE} =	±15	V	T_j:	125 °C	———
R_{gon} =	16	Ω		150 °C	– – –

figure 8. **FWD**

Typical reverse recovery time as a function of IGBT turn on gate resistor

$t_{rr} = f(R_{gon})$



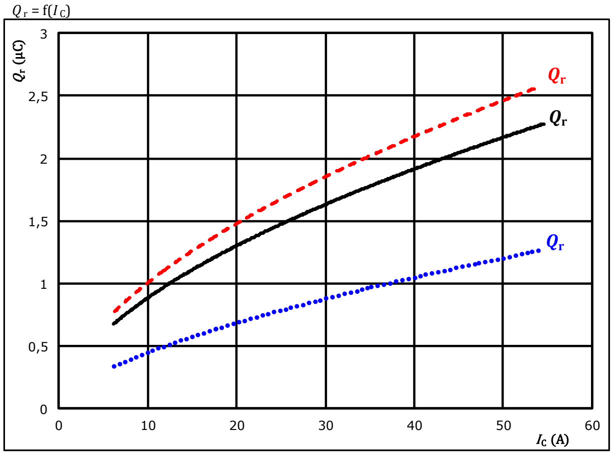
At					
V_{CE} =	350	V		25 °C	···········
V_{GE} =	±15	V	T_j:	125 °C	———
I_C =	30	A		150 °C	– – –

Buck Switching Characteristics

figure 9. **FWD**

Typical recovered charge as a function of collector current

$Q_r = f(I_C)$

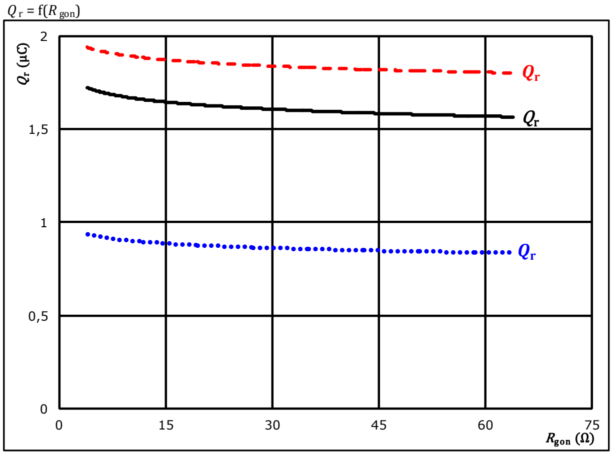


At						
	V_{CE} =	350	V	T_j:	25 °C	············
	V_{GE} =	±15	V		125 °C	———
	R_{gon} =	16	Ω		150 °C	– – –

figure 10. **FWD**

Typical recoved charge as a function of IGBT turn on gate resistor

$Q_r = f(R_{gon})$

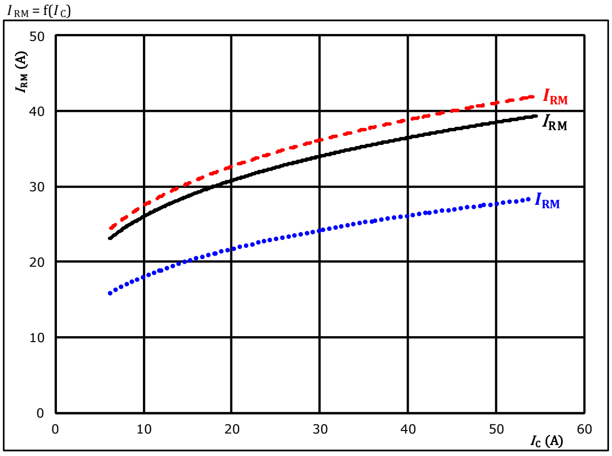


At						
	V_{CE} =	350	V	T_j:	25 °C	············
	V_{GE} =	±15	V		125 °C	———
	I_C =	30	A		150 °C	– – –

figure 11. **FWD**

Typical peak reverse recovery current current as a function of collector current

$I_{RM} = f(I_C)$

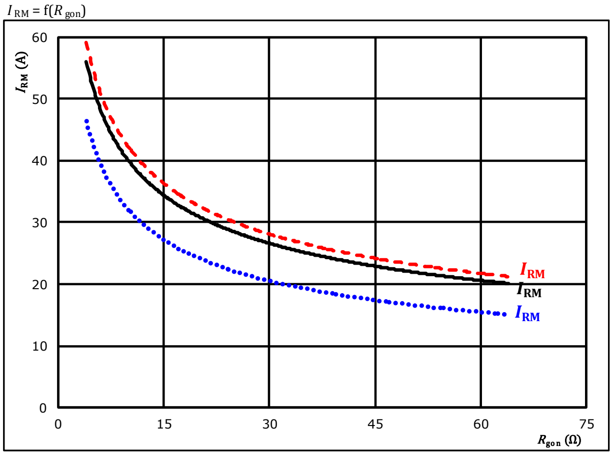


At						
	V_{CE} =	350	V	T_j:	25 °C	············
	V_{GE} =	±15	V		125 °C	———
	R_{gon} =	16	Ω		150 °C	– – –

figure 12. **FWD**

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$I_{RM} = f(R_{gon})$



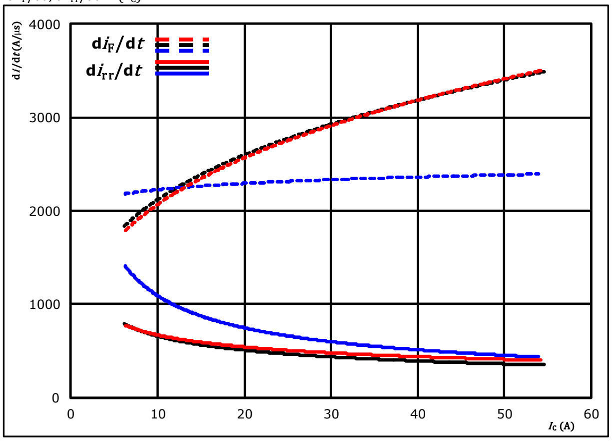
At						
	V_{CE} =	350	V	T_j:	25 °C	············
	V_{GE} =	±15	V		125 °C	———
	I_C =	30	A		150 °C	– – –

Buck Switching Characteristics

figure 13. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current

$di_F/dt, di_{rr}/dt = f(I_C)$

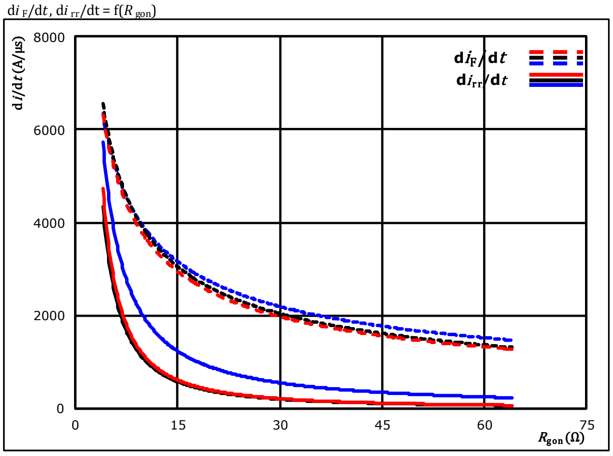


At					
V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
R_{gon} =	16	Ω		150 °C	dashed

figure 14. FWD

Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor

$di_F/dt, di_{rr}/dt = f(R_{gon})$

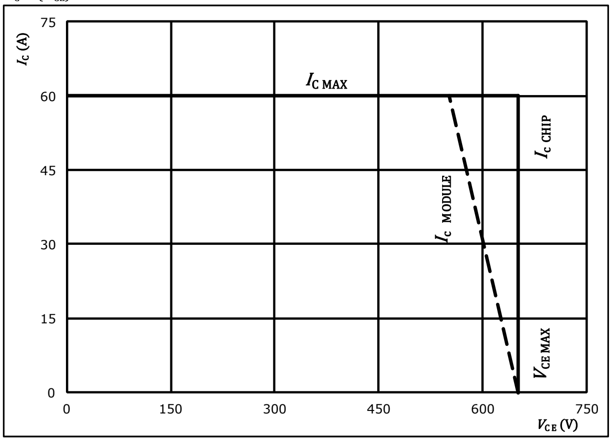


At					
V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
I_C =	30	A		150 °C	dashed

figure 15. IGBT

Reverse bias safe operating area

$I_C = f(V_{CE})$



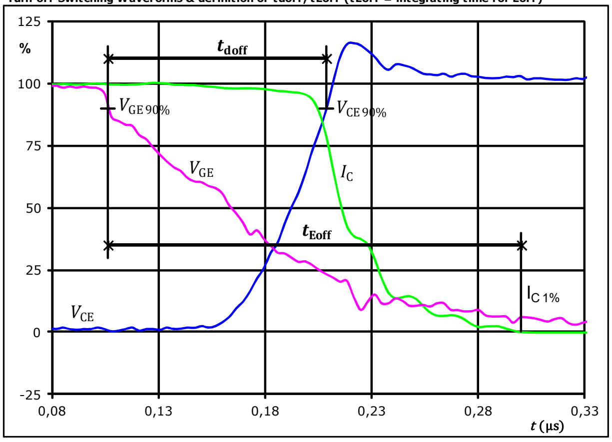
At		
T_j =	175	°C
R_{gon} =	16	Ω
R_{goff} =	16	Ω

Buck Switching Definitions

General conditions		
T_j	=	125 °C
R_{gon}	=	16 Ω
R_{goff}	=	16 Ω

figure 1. IGBT

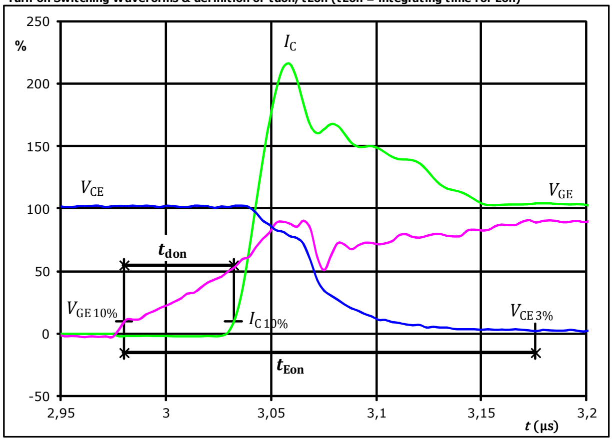
Turn-off Switching Waveforms & definition of tdoff, tEoff (tEoff = integrating time for Eoff)



$V_{GE}(0\%)$ =	-15	V
$V_{GE}(100\%)$ =	15	V
$V_C(100\%)$ =	350	V
$I_C(100\%)$ =	30	A
t_{doff} =	0,101	μs
t_{Eoff} =	0,194	μs

figure 2. IGBT

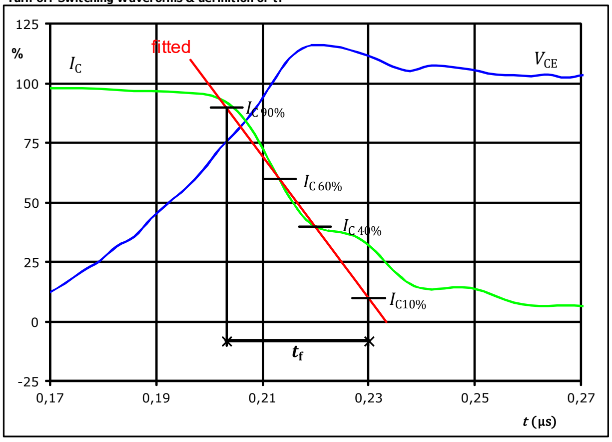
Turn-on Switching Waveforms & definition of tdon, tEon (tEon = integrating time for Eon)



$V_{GE}(0\%)$ =	-15	V
$V_{GE}(100\%)$ =	15	V
$V_C(100\%)$ =	350	V
$I_C(100\%)$ =	30	A
t_{don} =	0,056	μs
t_{Eon} =	0,196	μs

figure 3. IGBT

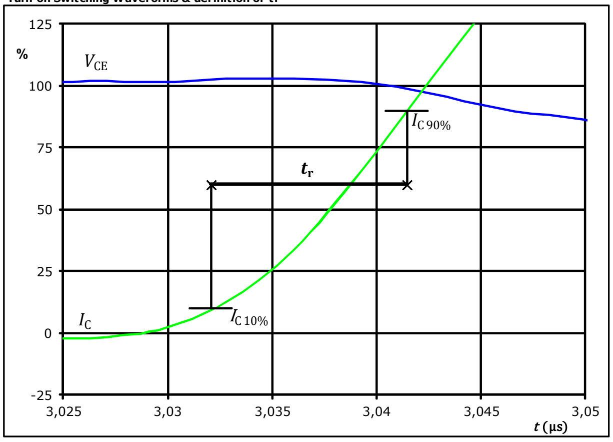
Turn-off Switching Waveforms & definition of tf



$V_C(100\%)$ =	350	V
$I_C(100\%)$ =	30	A
t_f =	0,031	μs

figure 4. IGBT

Turn-on Switching Waveforms & definition of tr

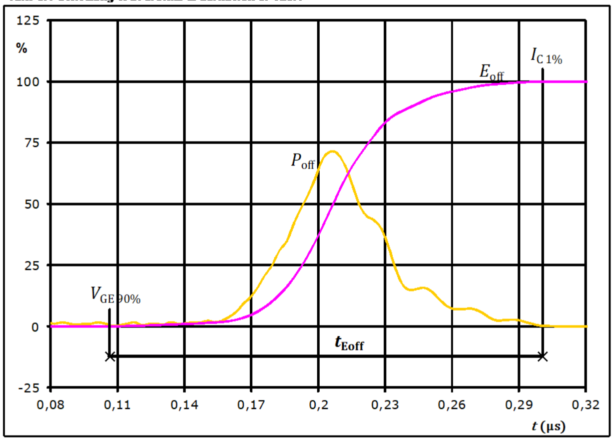


$V_C(100\%)$ =	350	V
$I_C(100\%)$ =	30	A
t_r =	0,010	μs

Buck Switching Characteristics

figure 5. **IGBT**

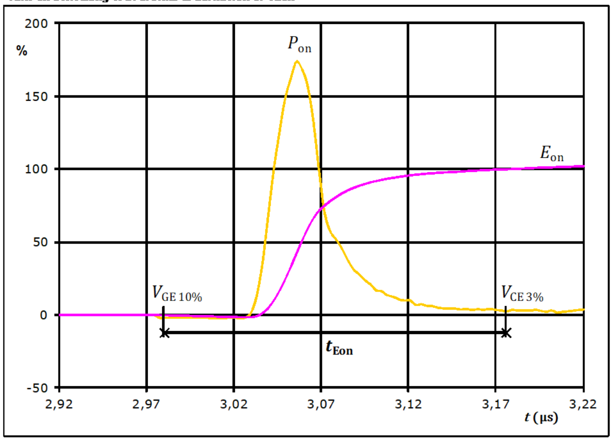
Turn-off Switching Waveforms & definition of tEoff



P_{off} (100%) =	10,57	kW
E_{off} (100%) =	0,38	mJ
t_{Eoff} =	0,19	µs

figure 6. **IGBT**

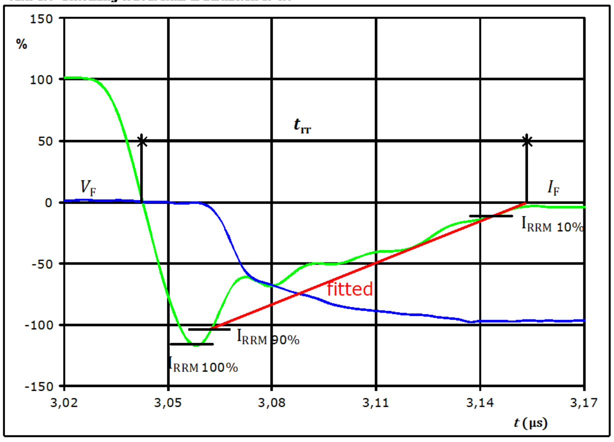
Turn-on Switching Waveforms & definition of tEon



P_{on} (100%) =	10,57	kW
E_{on} (100%) =	0,70	mJ
t_{Eon} =	0,20	µs

figure 7. **FWD**

Turn-off Switching Waveforms & definition of trr

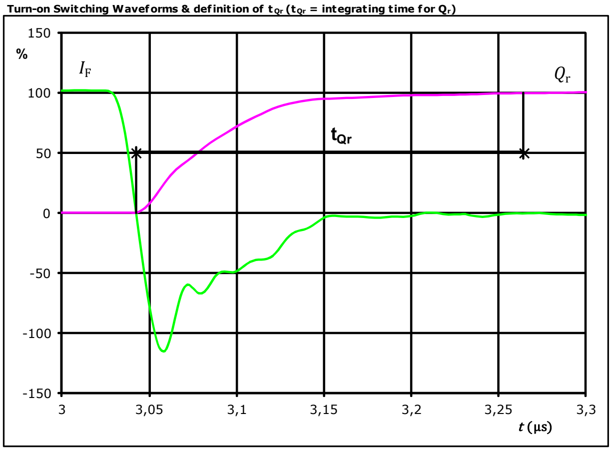


V_F (100%) =	350	V
I_F (100%) =	30	A
I_{RRM} (100%) =	-33	A
t_{rr} =	0,110	µs

Buck Switching Characteristics

figure 8. **FWD**

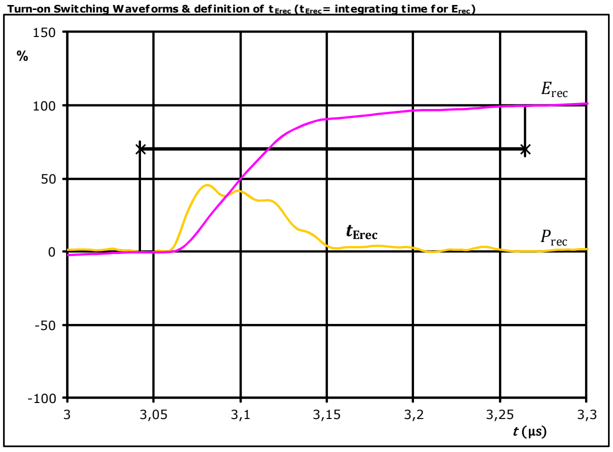
Turn-on Switching Waveforms & definition of t_{Qr} (t_{Qr} = integrating time for Q_r)



I_F (100%) =	30	A
Q_r (100%) =	1,66	µC
t_{Qr} =	0,22	µs

figure 9. **FWD**

Turn-on Switching Waveforms & definition of t_{Erec} (t_{Erec} = integrating time for E_{rec})



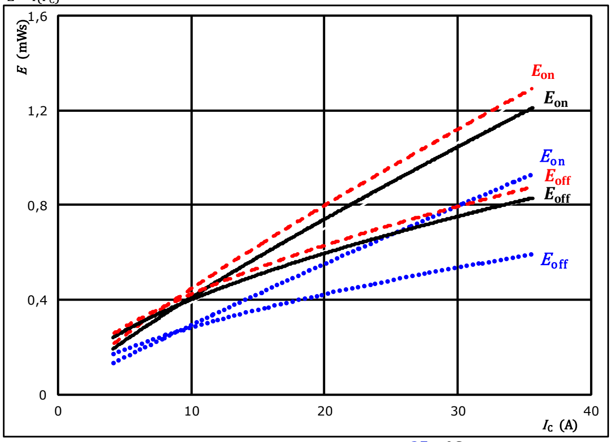
P_{rec} (100%) =	10,57	kW
E_{rec} (100%) =	0,33	mJ
t_{Erec} =	0,22	µs

Boost Switching Characteristics

figure 1. **IGBT**

Typical switching energy losses as a function of collector current

$E = f(I_C)$



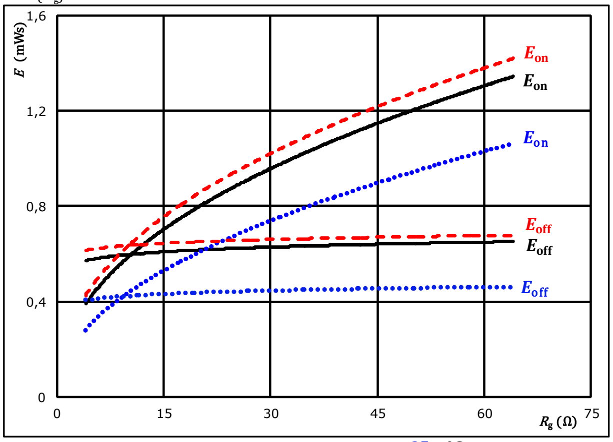
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
R_{gon} =	16	Ω		150 °C	dashed
R_{goff} =	16	Ω			

figure 2. **IGBT**

Typical switching energy losses as a function of gate resistor

$E = f(R_g)$



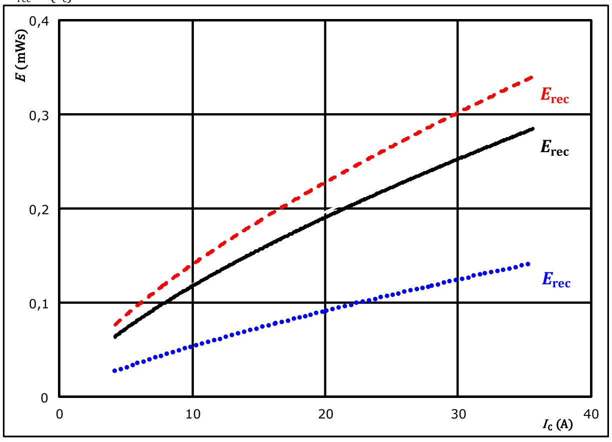
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
I_C =	20	A		150 °C	dashed

figure 3. **FWD**

Typical reverse recovered energy loss as a function of collector current

$E_{rec} = f(I_c)$



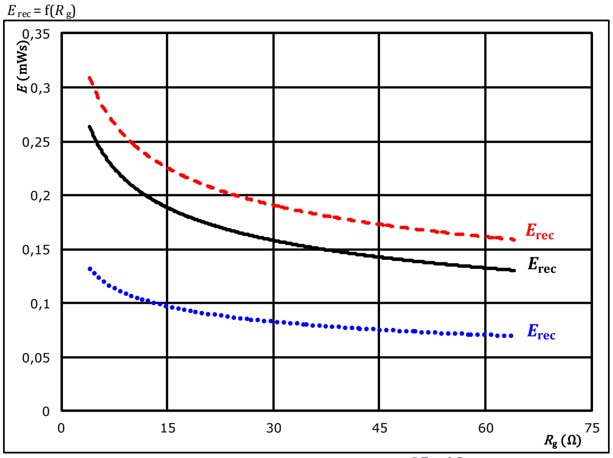
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
R_{gon} =	16	Ω		150 °C	dashed

figure 4. **FWD**

Typical reverse recovered energy loss as a function of gate resistor

$E_{rec} = f(R_g)$



With an inductive load at

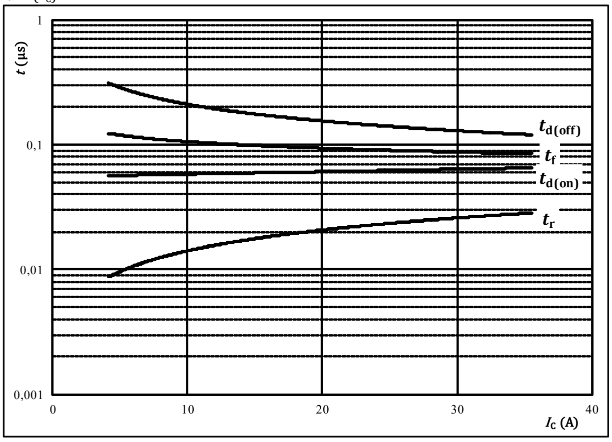
V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
I_C =	20	A		150 °C	dashed

Boost Switching Characteristics

figure 5. **IGBT**

Typical switching times as a function of collector current

$t = f(I_C)$



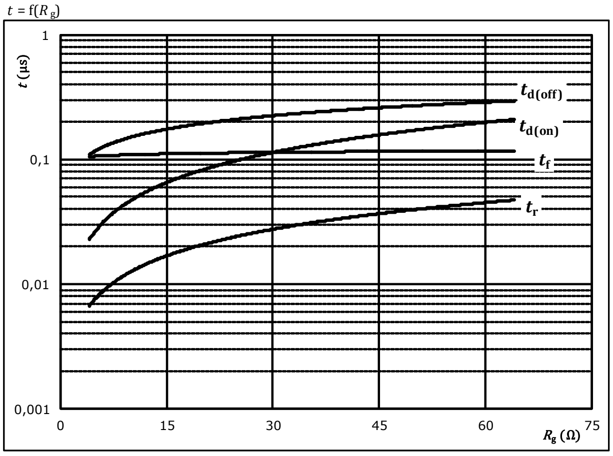
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
R_{gon} =	16	Ω
R_{goff} =	16	Ω

figure 6. **IGBT**

Typical switching times as a function of gate resistor

$t = f(R_g)$



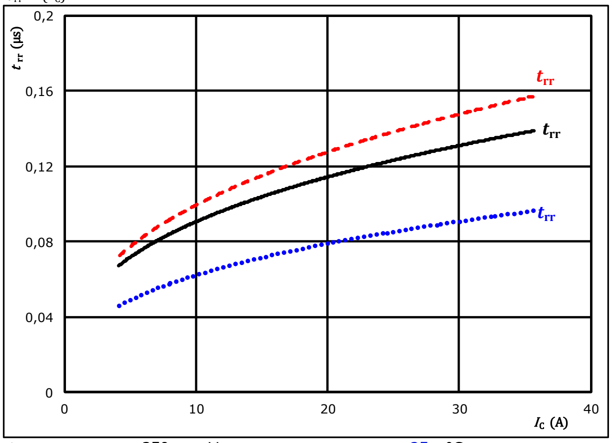
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
I_C =	20	A

figure 7. **FWD**

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$

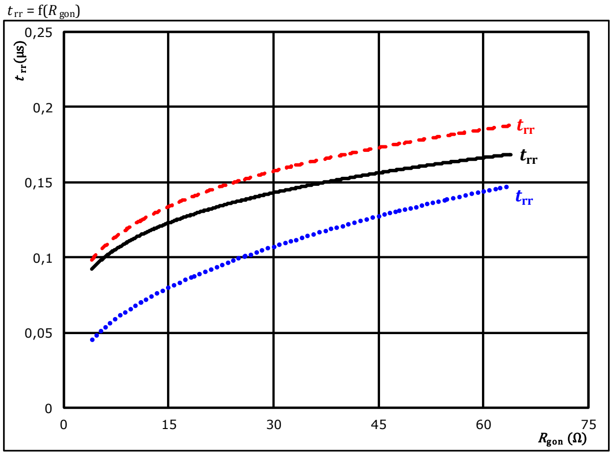


At V_{CE} =	350	V		25 °C	··········
V_{GE} =	±15	V	T_j:	125 °C	——
R_{gon} =	16	Ω		150 °C	– – –

figure 8. **FWD**

Typical reverse recovery time as a function of IGBT turn on gate resistor

$t_{rr} = f(R_{gon})$



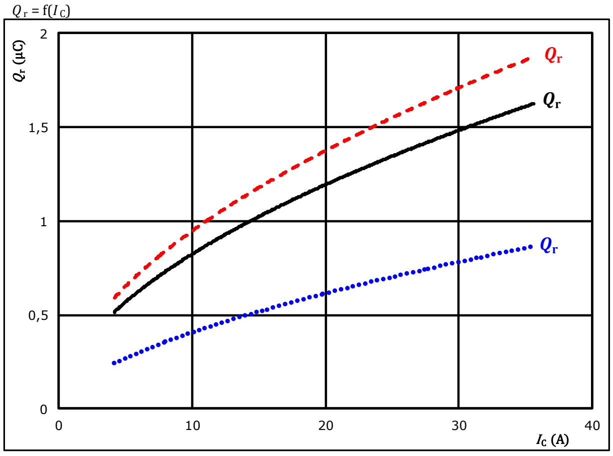
At V_{CE} =	350	V		25 °C	··········
V_{GE} =	±15	V	T_j:	125 °C	——
I_C =	20	A		150 °C	– – –

Boost Switching Characteristics

figure 9. **FWD**

Typical recovered charge as a function of collector current

$Q_r = f(I_C)$

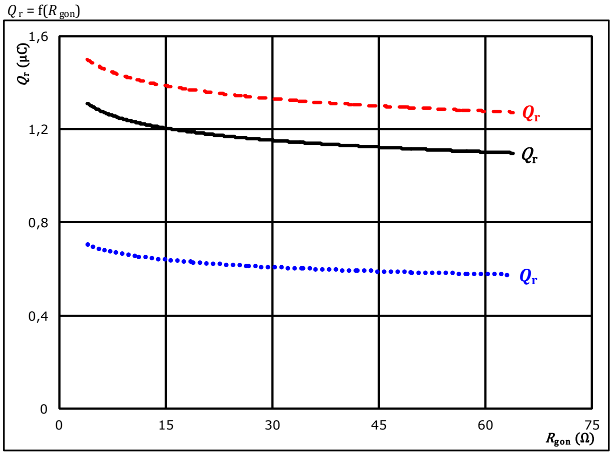


At						
	V_{CE} =	350	V	T_j:	25 °C	•••••••••
	V_{GE} =	±15	V		125 °C	——
	R_{gon} =	16	Ω		150 °C	– – –

figure 10. **FWD**

Typical recoved charge as a function of IGBT turn on gate resistor

$Q_r = f(R_{gon})$

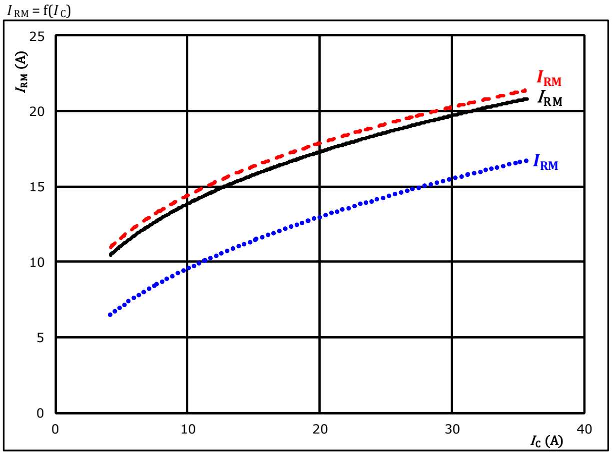


At						
	V_{CE}=	350	V	T_j:	25 °C	•••••••••
	V_{GE} =	±15	V		125 °C	——
	I_C=	20	A		150 °C	– – –

figure 11. **FWD**

Typical peak reverse recovery current current as a function of collector current

$I_{RM} = f(I_C)$

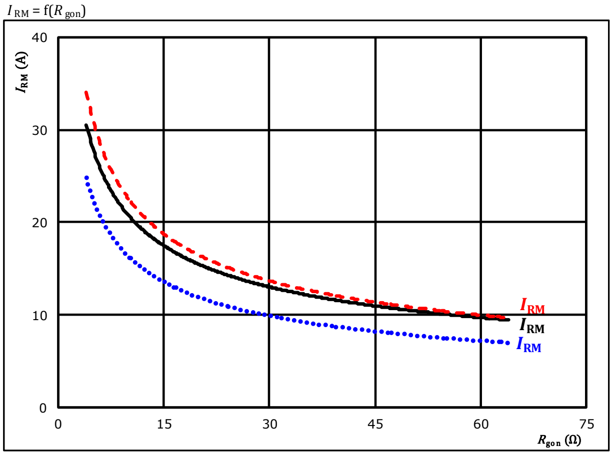


At						
	V_{CE} =	350	V	T_j:	25 °C	•••••••••
	V_{GE} =	±15	V		125 °C	——
	R_{gon} =	16	Ω		150 °C	– – –

figure 12. **FWD**

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$I_{RM} = f(R_{gon})$



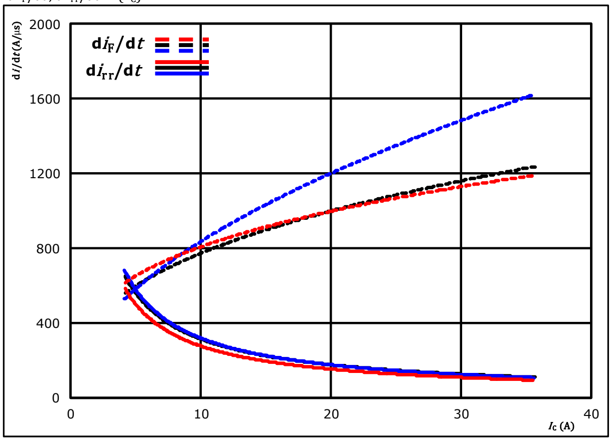
At						
	V_{CE} =	350	V	T_j:	25 °C	•••••••••
	V_{GE} =	±15	V		125 °C	——
	I_C =	20	A		150 °C	– – –

Boost Switching Characteristics

figure 13. FWD

Typical rate of fall of forward and reverse recovery current as a function of collector current

di_F/dt, $di_{rr}/dt = f(I_C)$



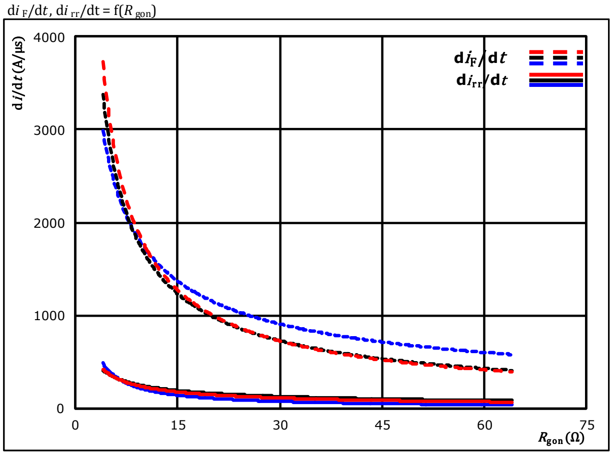
At

V_{CE} =	350	V	T_j:	25 °C (dotted)
V_{GE} =	±15	V		125 °C (solid)
R_{gon} =	16	Ω		150 °C (dashed)

figure 14. FWD

Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor

di_F/dt, $di_{rr}/dt = f(R_{gon})$



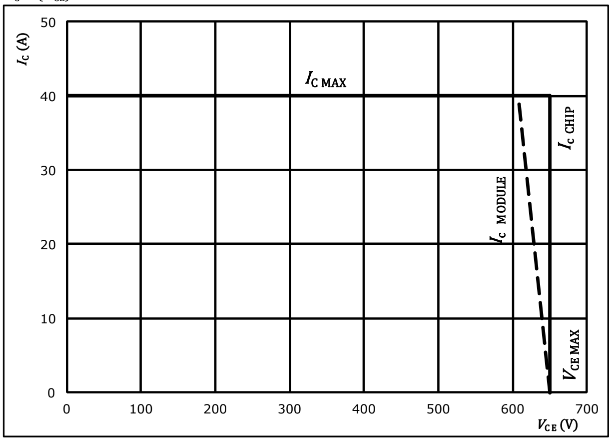
At

V_{CE} =	350	V	T_j:	25 °C (dotted)
V_{GE} =	±15	V		125 °C (solid)
I_C =	20	A		150 °C (dashed)

figure 15. IGBT

Reverse bias safe operating area

$I_C = f(V_{CE})$



At

T_j =	175	°C
R_{gon} =	16	Ω
R_{goff} =	16	Ω

Vincotech

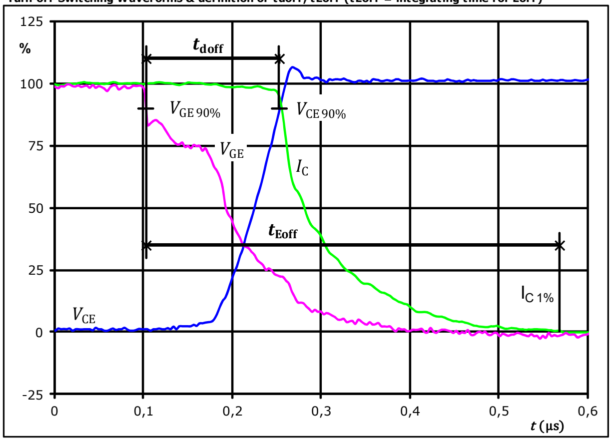
Boost Switching Definitions

General conditions

T_j	=	125 °C
R_{gon}	=	16 Ω
R_{goff}	=	16 Ω

figure 1. IGBT

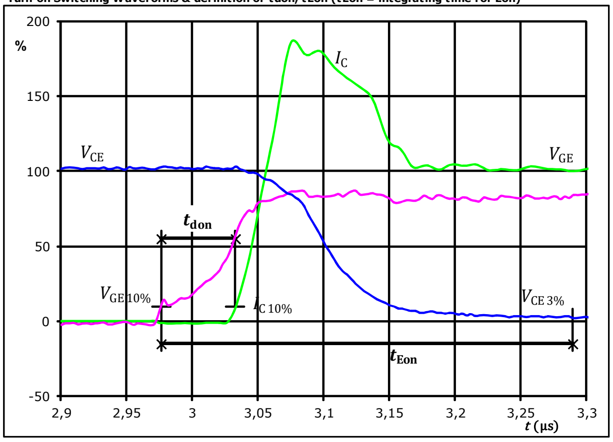
Turn-off Switching Waveforms & definition of tdoff, tEoff (tEoff = integrating time for Eoff)



V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	350	V
I_C (100%) =	20	A
t_{doff} =	0,150	µs
t_{Eoff} =	0,465	µs

figure 2. IGBT

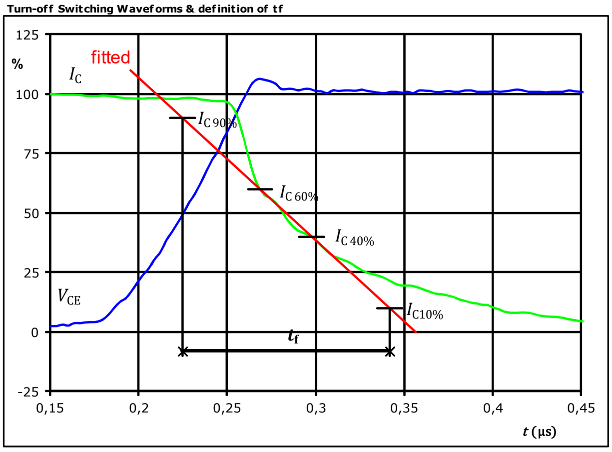
Turn-on Switching Waveforms & definition of tdon, tEon (tEon = integrating time for Eon)



V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	350	V
I_C (100%) =	20	A
t_{don} =	0,061	µs
t_{Eon} =	0,313	µs

figure 3. IGBT

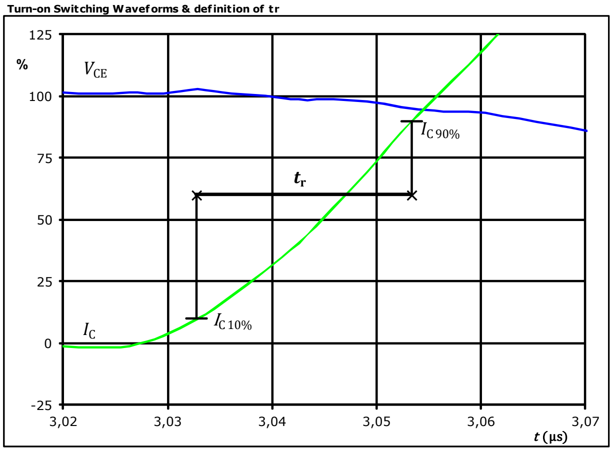
Turn-off Switching Waveforms & definition of tf



V_C (100%) =	350	V
I_C (100%) =	20	A
t_f =	0,105	µs

figure 4. IGBT

Turn-on Switching Waveforms & definition of tr



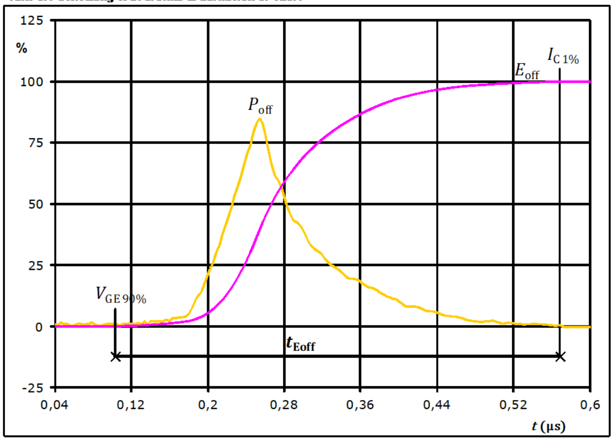
V_C (100%) =	350	V
I_C (100%) =	20	A
t_r =	0,021	µs

Vincotech

Boost Switching Characteristics

figure 5. **IGBT**

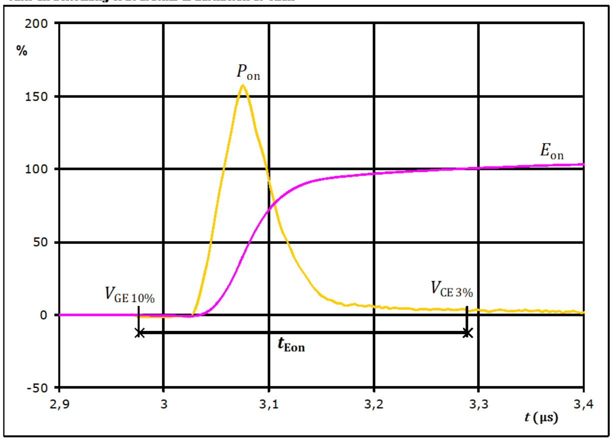
Turn-off Switching Waveforms & definition of tEoff



P_{off}(100%) =	7,03	kW
E_{off}(100%) =	0,61	mJ
t_{Eoff} =	0,47	µs

figure 6. **IGBT**

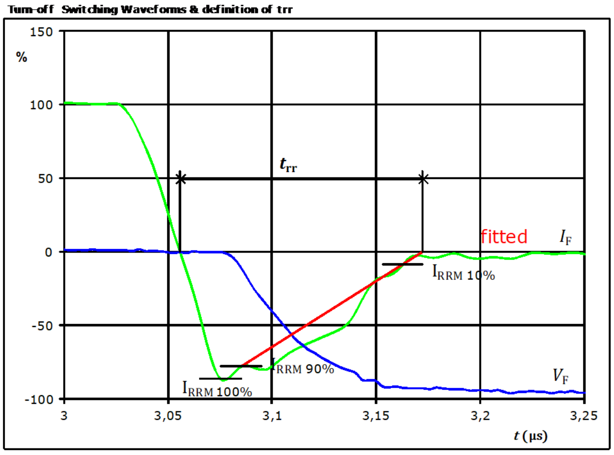
Turn-on Switching Waveforms & definition of tEon



P_{on}(100%) =	7,03	kW
E_{on}(100%) =	0,71	mJ
t_{Eon} =	0,31	µs

figure 7. **FWD**

Turn-off Switching Waveforms & definition of trr

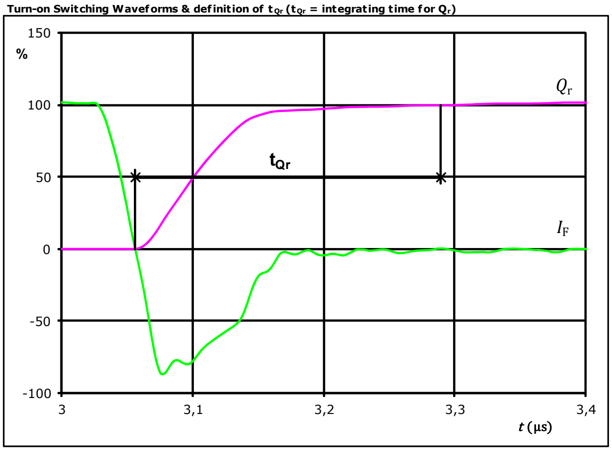


V_F(100%) =	350	V
I_F(100%) =	20	A
I_{RRM}(100%) =	-17	A
t_{rr} =	0,114	µs

Boost Switching Characteristics

figure 8. **FWD**

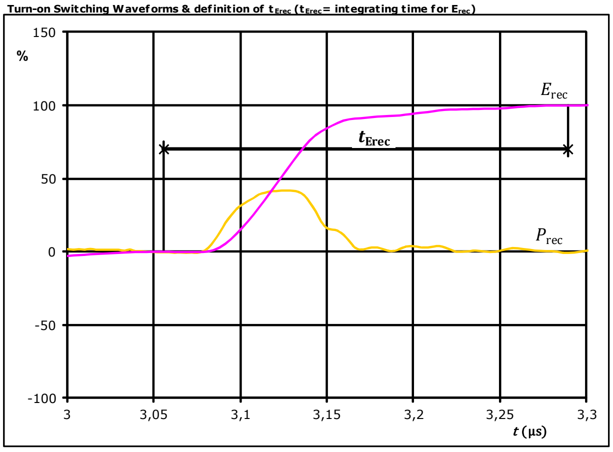
Turn-on Switching Waveforms & definition of t_{Qr} (t_{Qr} = integrating time for Q_r)



I_F (100%) =	20	A
Q_r (100%) =	1,20	µC
t_{Qr} =	0,23	µs

figure 9. **FWD**

Turn-on Switching Waveforms & definition of t_{Erec} (t_{Erec} = integrating time for E_{rec})



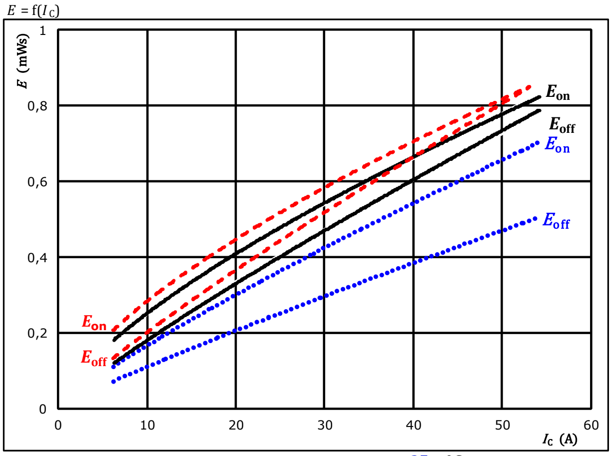
P_{rec} (100%) =	7,03	kW
E_{rec} (100%) =	0,20	mJ
t_{Erec} =	0,23	µs

Input Boost Switching Characteristics

figure 1. **IGBT**

Typical switching energy losses as a function of collector current

$E = f(I_C)$



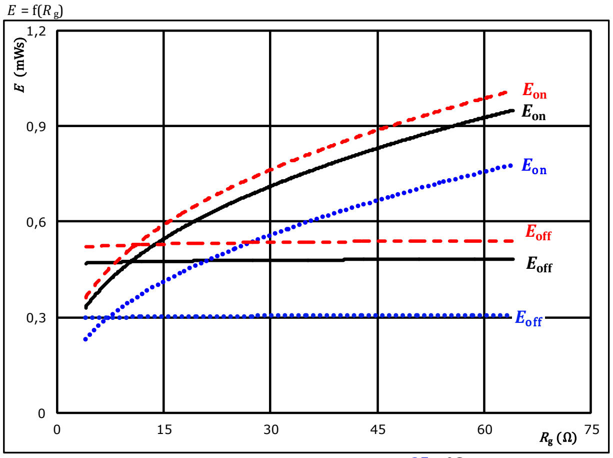
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
R_{gon} =	16	Ω		150 °C	dashed
R_{goff} =	16	Ω			

figure 2. **IGBT**

Typical switching energy losses as a function of gate resistor

$E = f(R_g)$



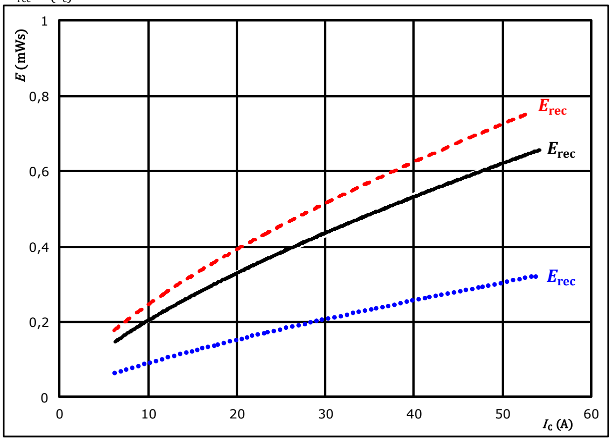
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
I_C =	30	A		150 °C	dashed

figure 3. **FWD**

Typical reverse recovered energy loss as a function of collector current

$E_{rec} = f(I_C)$



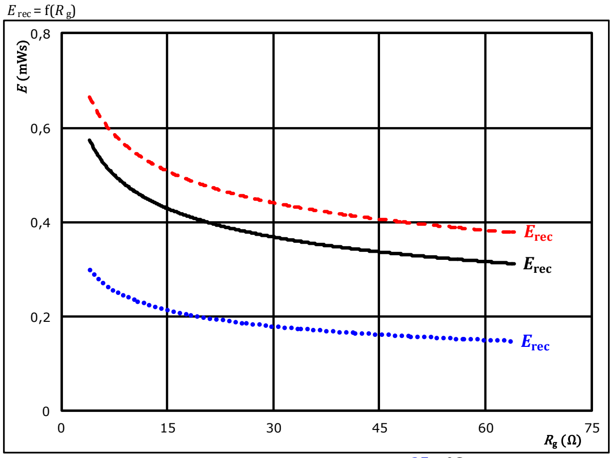
With an inductive load at

V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
R_{gon} =	16	Ω		150 °C	dashed

figure 4. **FWD**

Typical reverse recovered energy loss as a function of gate resistor

$E_{rec} = f(R_g)$



With an inductive load at

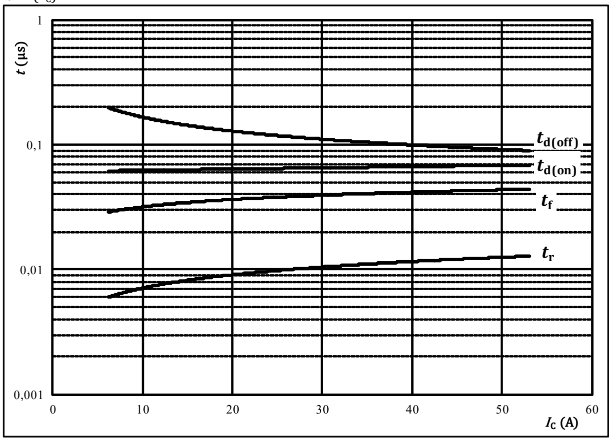
V_{CE} =	350	V	T_j:	25 °C	dotted
V_{GE} =	±15	V		125 °C	solid
I_C =	30	A		150 °C	dashed

Input Boost Switching Characteristics

figure 5. **IGBT**

Typical switching times as a function of collector current

$t = f(I_C)$



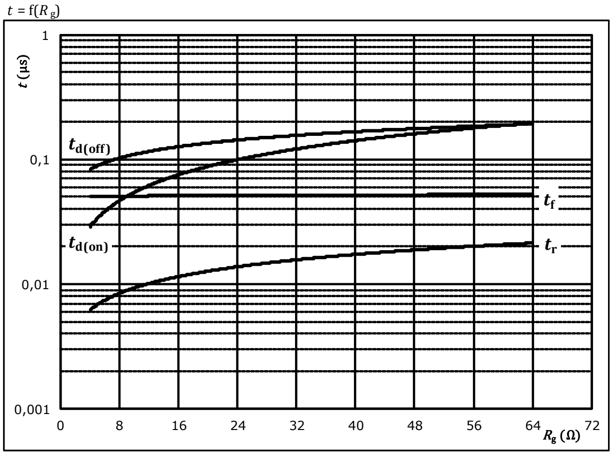
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
R_{gon} =	16	Ω
R_{goff} =	16	Ω

figure 6. **IGBT**

Typical switching times as a function of gate resistor

$t = f(R_g)$



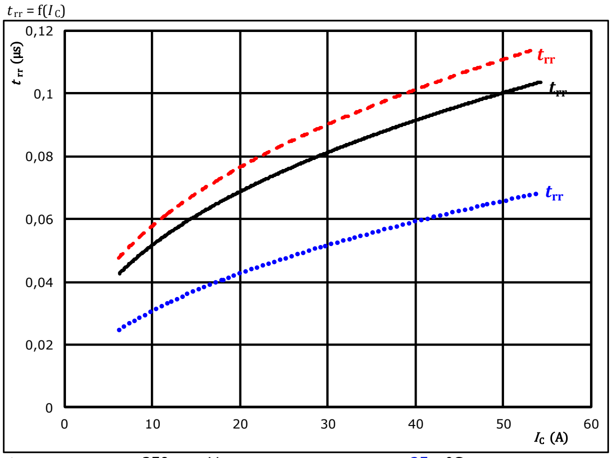
With an inductive load at

T_j =	150	°C
V_{CE} =	350	V
V_{GE} =	±15	V
I_C =	30	A

figure 7. **FWD**

Typical reverse recovery time as a function of collector current

$t_{rr} = f(I_C)$

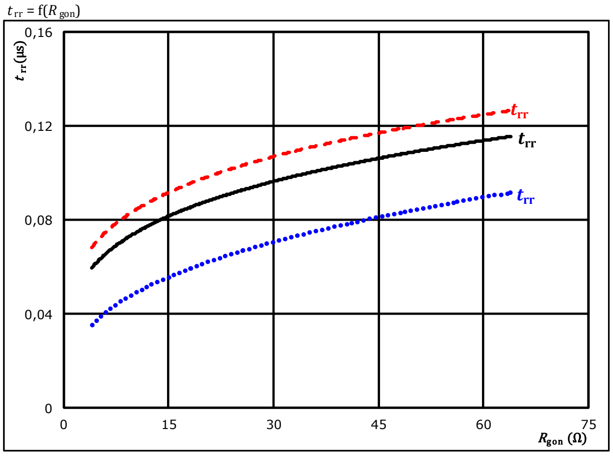


At						
V_{CE} =	350	V		25	°C	dotted
V_{GE} =	±15	V	T_j:	125	°C	solid
R_{gon} =	16	Ω		150	°C	dashed

figure 8. **FWD**

Typical reverse recovery time as a function of IGBT turn on gate resistor

$t_{rr} = f(R_{gon})$



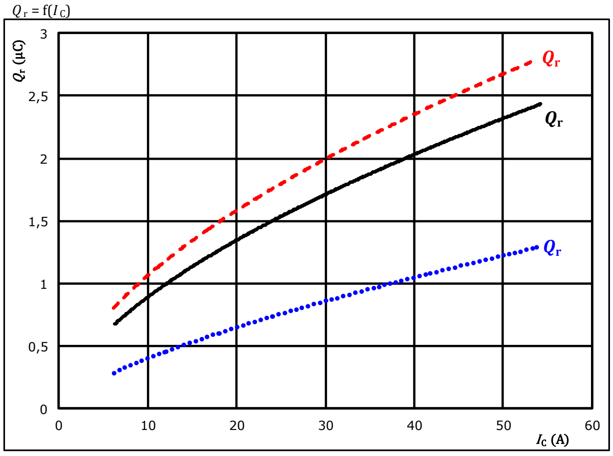
At						
V_{CE} =	350	V		25	°C	dotted
V_{GE} =	±15	V	T_j:	125	°C	solid
I_C =	30	A		150	°C	dashed

Input Boost Switching Characteristics

figure 9. **FWD**

Typical recovered charge as a function of collector current

$Q_r = f(I_C)$

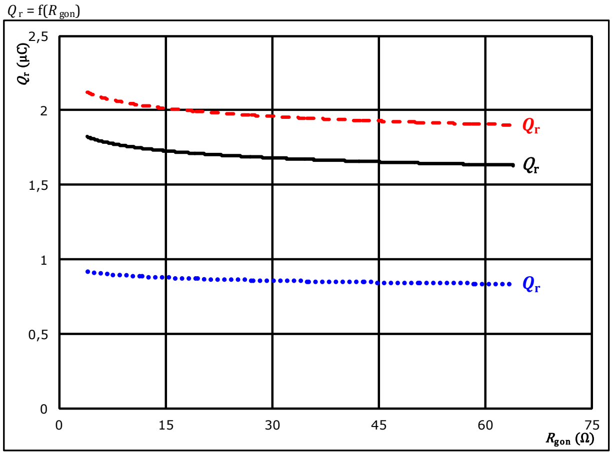


At					
V_{CE} =	350	V	T_j:	25 °C	•••••••••••••
V_{GE} =	±15	V		125 °C	———
R_{gon} =	16	Ω		150 °C	– – –

figure 10. **FWD**

Typical recoved charge as a function of IGBT turn on gate resistor

$Q_r = f(R_{gon})$

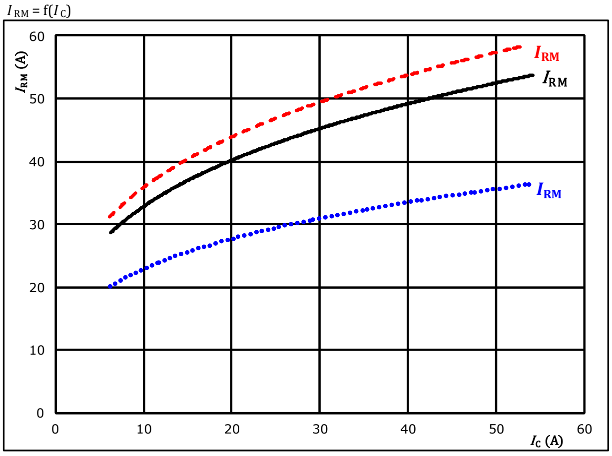


At					
V_{CE}=	350	V	T_j:	25 °C	•••••••••••••
V_{GE} =	±15	V		125 °C	———
I_C=	30	A		150 °C	– – –

figure 11. **FWD**

Typical peak reverse recovery current current as a function of collector current

$I_{RM} = f(I_C)$

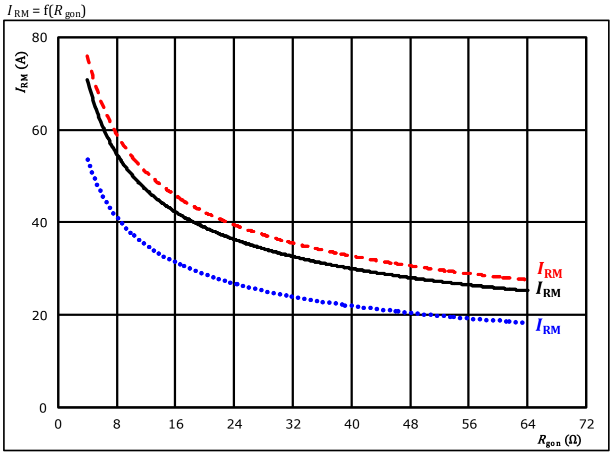


At					
V_{CE} =	350	V	T_j:	25 °C	•••••••••••••
V_{GE} =	±15	V		125 °C	———
R_{gon} =	16	Ω		150 °C	– – –

figure 12. **FWD**

Typical peak reverse recovery current as a function of IGBT turn on gate resistor

$I_{RM} = f(R_{gon})$



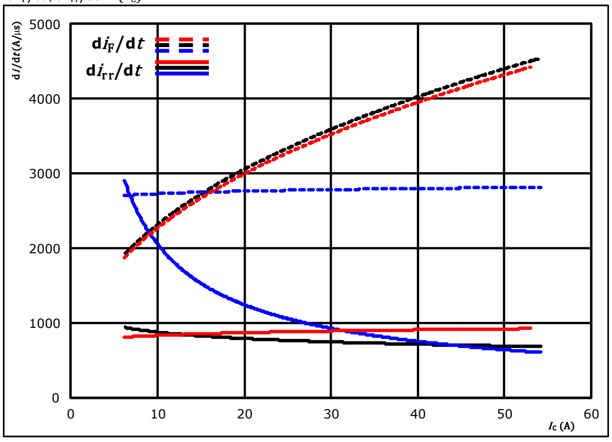
At					
V_{CE} =	350	V	T_j:	25 °C	•••••••••••••
V_{GE} =	±15	V		125 °C	———
I_C =	30	A		150 °C	– – –

Input Boost Switching Characteristics

figure 13. **FWD**

Typical rate of fall of forward and reverse recovery current as a function of collector current

$di_F/dt,\ di_{rr}/dt = f(I_C)$

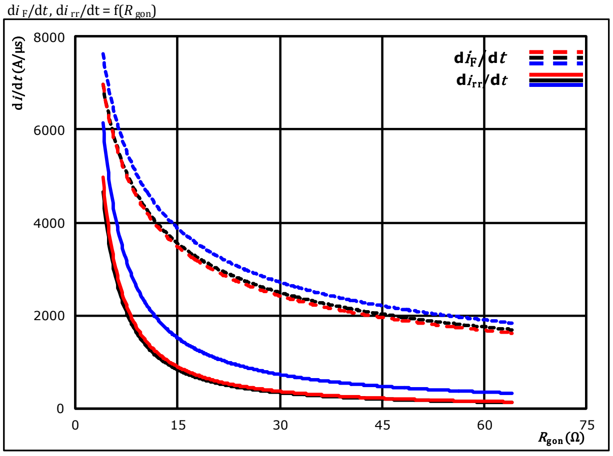


At					
V_{CE} =	350	V	T_j:	25 °C	··············
V_{GE} =	±15	V		125 °C	———
R_{gon} =	16	Ω		150 °C	– – –

figure 14. **FWD**

Typical rate of fall of forward and reverse recovery current as a function of IGBT turn on gate resistor

$di_F/dt,\ di_{rr}/dt = f(R_{gon})$

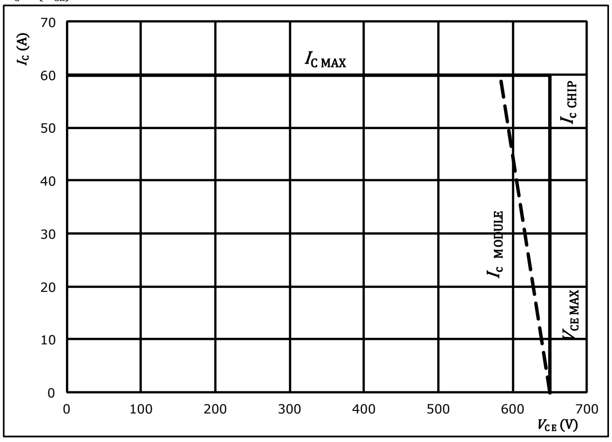


At					
V_{CE} =	350	V	T_j:	25 °C	··············
V_{GE} =	±15	V		125 °C	———
I_C =	30	A		150 °C	– – –

figure 15. **IGBT**

Reverse bias safe operating area

$I_C = f(V_{CE})$



At		
T_j =	175	°C
R_{gon} =	16	Ω
R_{goff} =	16	Ω

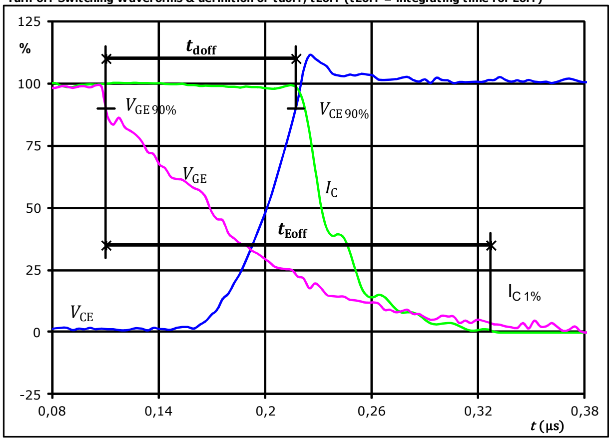
Input Boost Switching Definitions

General conditions

T_j	=	125 °C
R_{gon}	=	16 Ω
R_{goff}	=	16 Ω

figure 1. IGBT

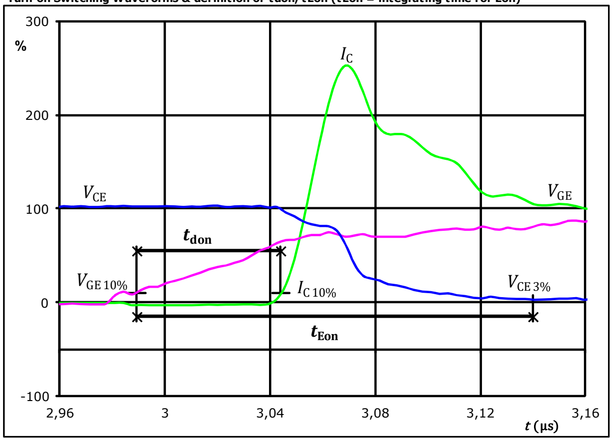
Turn-off Switching Waveforms & definition of tdoff, tEoff (tEoff = integrating time for Eoff)



V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	350	V
I_C (100%) =	30	A
t_{doff} =	0,106	µs
t_{Eoff} =	0,217	µs

figure 2. IGBT

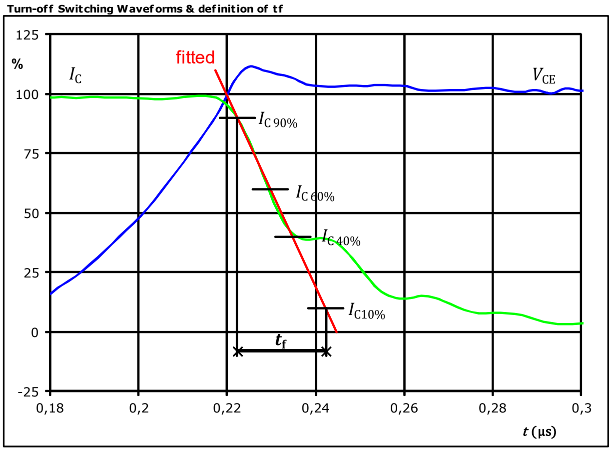
Turn-on Switching Waveforms & definition of tdon, tEon (tEon = integrating time for Eon)



V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	350	V
I_C (100%) =	30	A
t_{don} =	0,066	µs
t_{Eon} =	0,151	µs

figure 3. IGBT

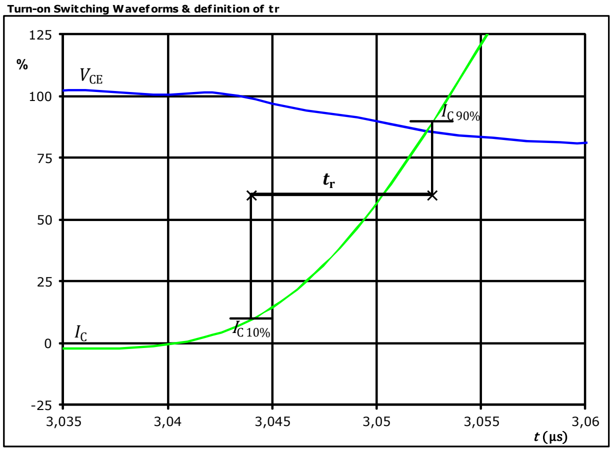
Turn-off Switching Waveforms & definition of tf



V_C (100%) =	350	V
I_C (100%) =	30	A
t_f =	0,033	µs

figure 4. IGBT

Turn-on Switching Waveforms & definition of tr

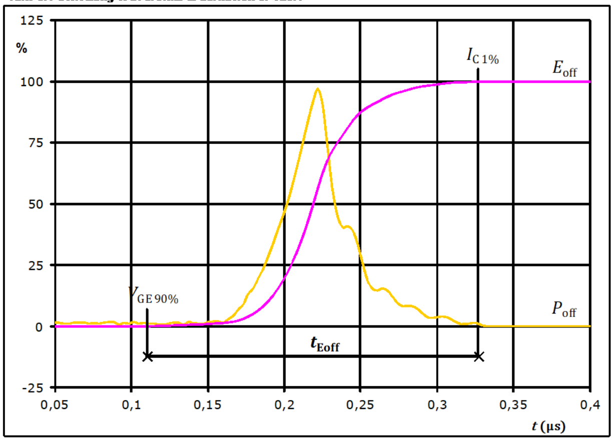


V_C (100%) =	350	V
I_C (100%) =	30	A
t_r =	0,009	µs

Input Boost Switching Characteristics

figure 5. **IGBT**

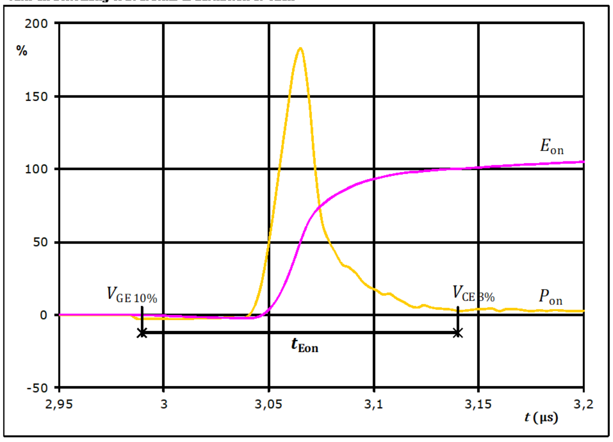
Turn-off Switching Waveforms & definition of tEoff



P_{off} (100%) =	10,59	kW
E_{off} (100%) =	0,48	mJ
t_{Eoff} =	0,22	µs

figure 6. **IGBT**

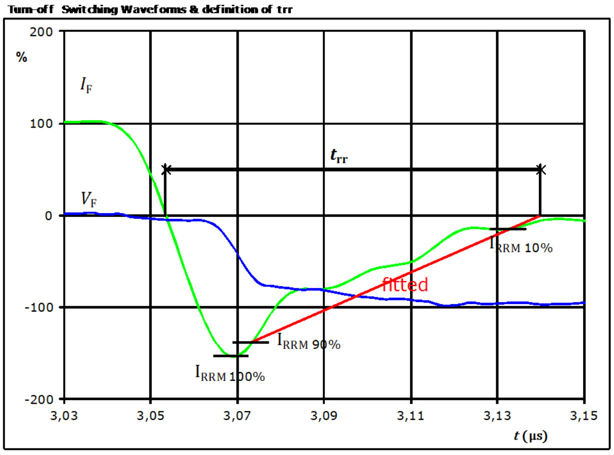
Turn-on Switching Waveforms & definition of tEon



P_{on} (100%) =	10,59	kW
E_{on} (100%) =	0,54	mJ
t_{Eon} =	0,15	µs

figure 7. **FWD**

Turn-off Switching Waveforms & definition of trr

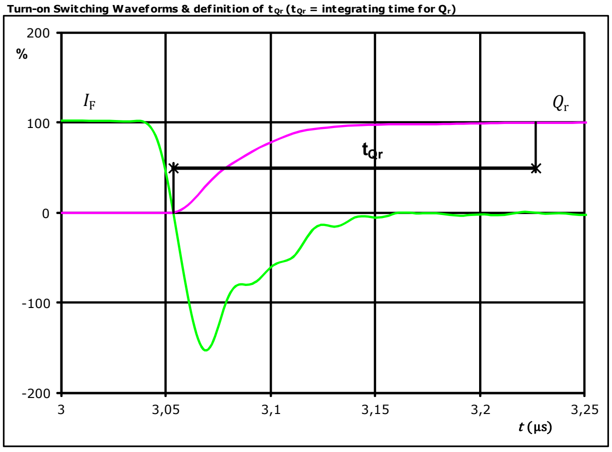


V_F (100%) =	350	V
I_F (100%) =	30	A
I_{RRM} (100%) =	-44	A
t_{rr} =	0,079	µs

Input Boost Switching Characteristics

figure 8. **FWD**

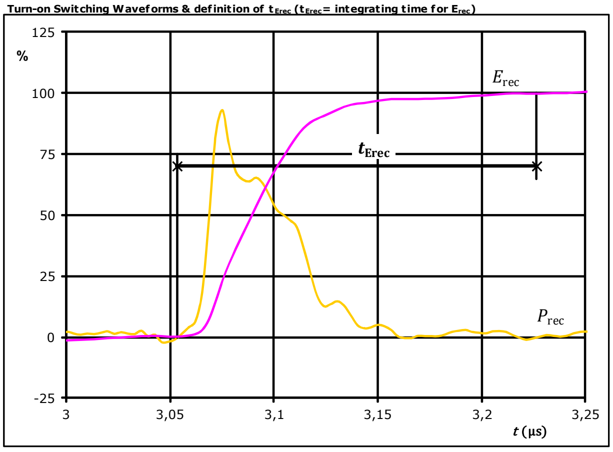
Turn-on Switching Waveforms & definition of t_{Qr} (t_{Qr} = integrating time for Q_r)



I_F (100%) =	30	A
Q_r (100%) =	1,71	µC
t_{Qr} =	0,17	µs

figure 9. **FWD**

Turn-on Switching Waveforms & definition of t_{Erec} (t_{Erec} = integrating time for E_{rec})



P_{rec} (100%) =	10,59	kW
E_{rec} (100%) =	0,43	mJ
t_{Erec} =	0,17	µs

Vincotech

10-FZ07BVA030S5-LD45E08
10-PC07BVA030S5-LD45E06Y
datasheet

Ordering Code & Marking

Version	Ordering Code
without thermal paste 12mm 2clips housing with Solder pins	10-FZ07BVA030S5-LD45E08
with thermal paste 12mm 2 clips housing with Solder pins	10-FZ07BVA030S5-LD45E08-/3/
without thermal paste 12mm housing without clips with Pressfit pins	10-PC07BVA030S5-LD45E06Y
with thermal paste 12mm housing without clips with Pressfit pins	10-PC07BVA030S5-LD45E06Y-/3/

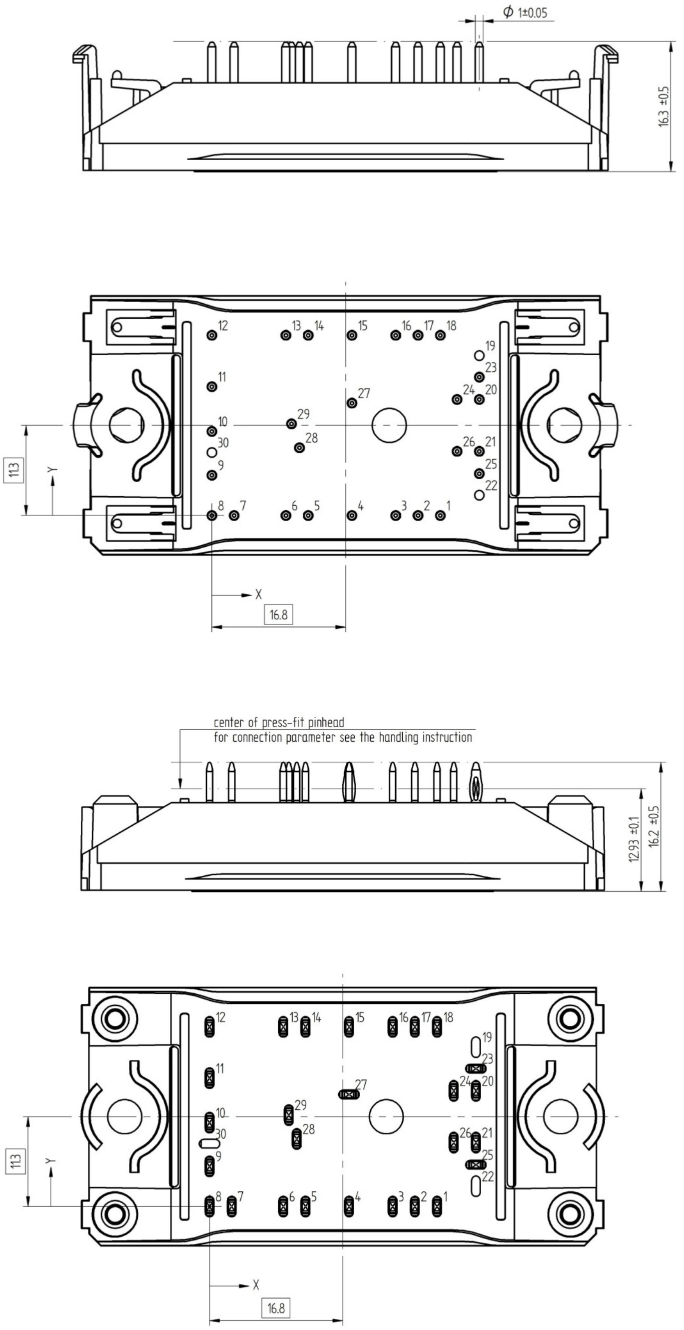
	Name	Date code	UL & VIN	Lot	Serial
Text	NN-NNNNNNNNNNNNNN-TTTTTTVV	WWYY	UL VIN	LLLLL	SSSS

	Type&Ver	Lot number	Serial	Date code
Datamatrix	TTTTTTVV	LLLLL	SSSS	WWYY

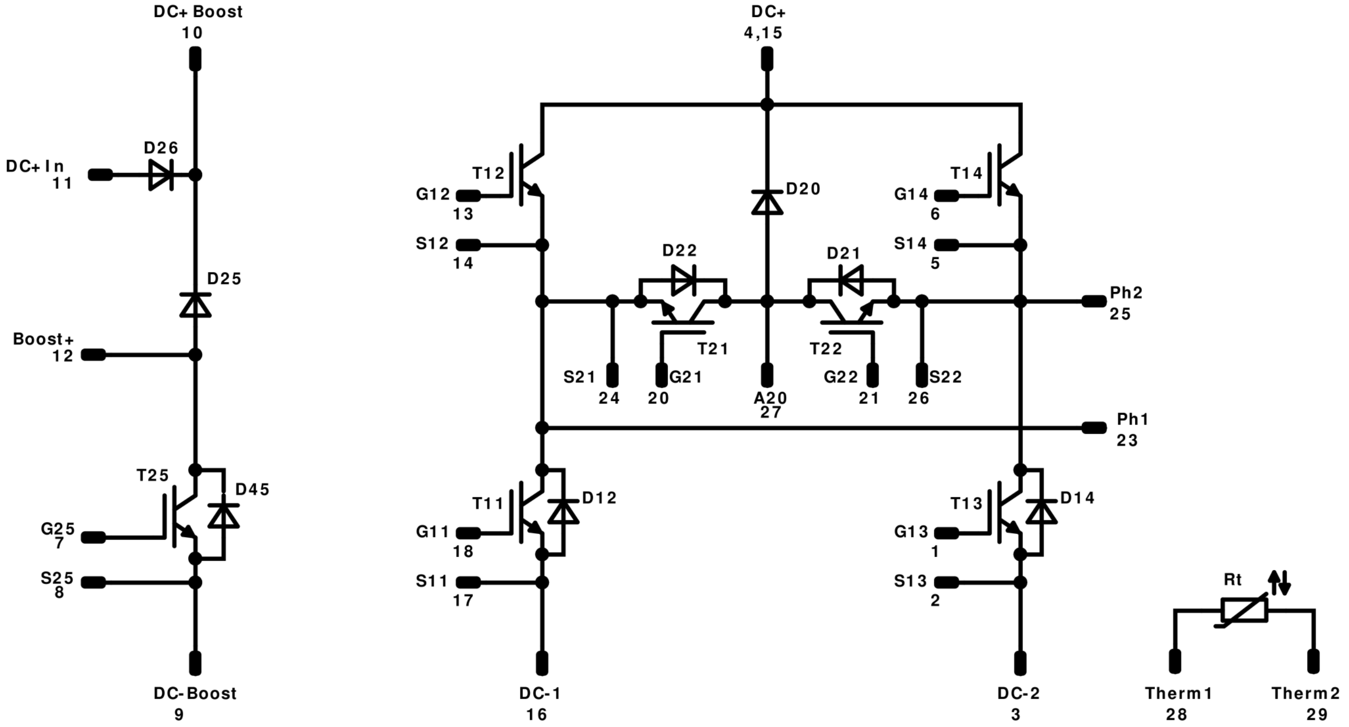
Outline

Pin	X	Y	Function
1	28,7	0	G13
2	25,9	0	S13
3	23,1	0	DC-2
4	17,6	0	DC+
5	12,1	0	S14
6	9,3	0	G14
7	2,8	0	G25
8	0	0	S25
9	0	5,05	DC-Boost
10	0	10,55	DC+Boost
11	0	16,15	DC+In
12	0	22,6	Boost+
13	9,3	22,6	G12
14	12,1	22,6	S12
15	17,6	22,6	DC+
16	23,1	22,6	DC-1
17	25,9	22,6	S11
18	28,7	22,6	G11
19	Not assembled		
20	33,6	14,55	G21
21	33,6	8,05	G22
22	Not assembled		
23	33,6	17,35	Ph1
24	30,8	14,55	S21
25	33,6	5,25	Ph2
26	30,8	8,05	S22
27	17,6	14,1	A20
28	11	8,5	Therm1
29	10	11,5	Therm2
30	Not assembled		

Tolerance of pinpositions: ±0.5mm at the end of pins
Dimension of coordinate axis is only offset without tolerance



Pinout



Identification

ID	Component	Voltage	Current	Function	Comment
T11, T13, T12, T14	IGBT	650 V	30 A	Low Buck Switch / High Buck Switch	
D21, D22	FWD	650 V	20 A	Buck Diode	
T21, T22	IGBT	650 V	20 A	Boost Switch	
D20, D12, D14	FWD	650 V	20 A	High Boost Diode / Low Boost Diode	
T25	IGBT	650 V	30 A	Input Boost Switch	
D25	FWD	650 V	30 A	Input Boost Diode	
D45	FWD	650 V	10 A	Input Boost Sw. Protection Diode	
D26	Rectifier	1600 V	35 A	ByPass Diode	
Rt	NTC			Thermistor	

Vincotech

Packaging instruction				
Standard packaging quantity (SPQ) 135	>SPQ	Standard	<SPQ	Sample

Handling instruction
Handling instructions for *flow* 0 packages see vincotech.com website.

Package data
Package data for *flow* 0 packages see vincotech.com website.

UL recognition and file number
This device is certified according to UL 1557 standard, UL file number E192116. For more information see vincotech.com website.

Document No.:	Date:	Modification:	Pages
10-xx07BVA030S5-LD45E0xX-D2-14	18 Jun. 2019	Add new subtype with housing without clips and Pressfit pin	1,44

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.